Non-Linearity as Architectural Narrative:

A Center for Contemporary Composition

In Three Movements

by
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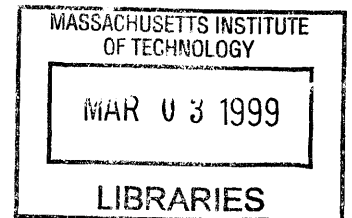
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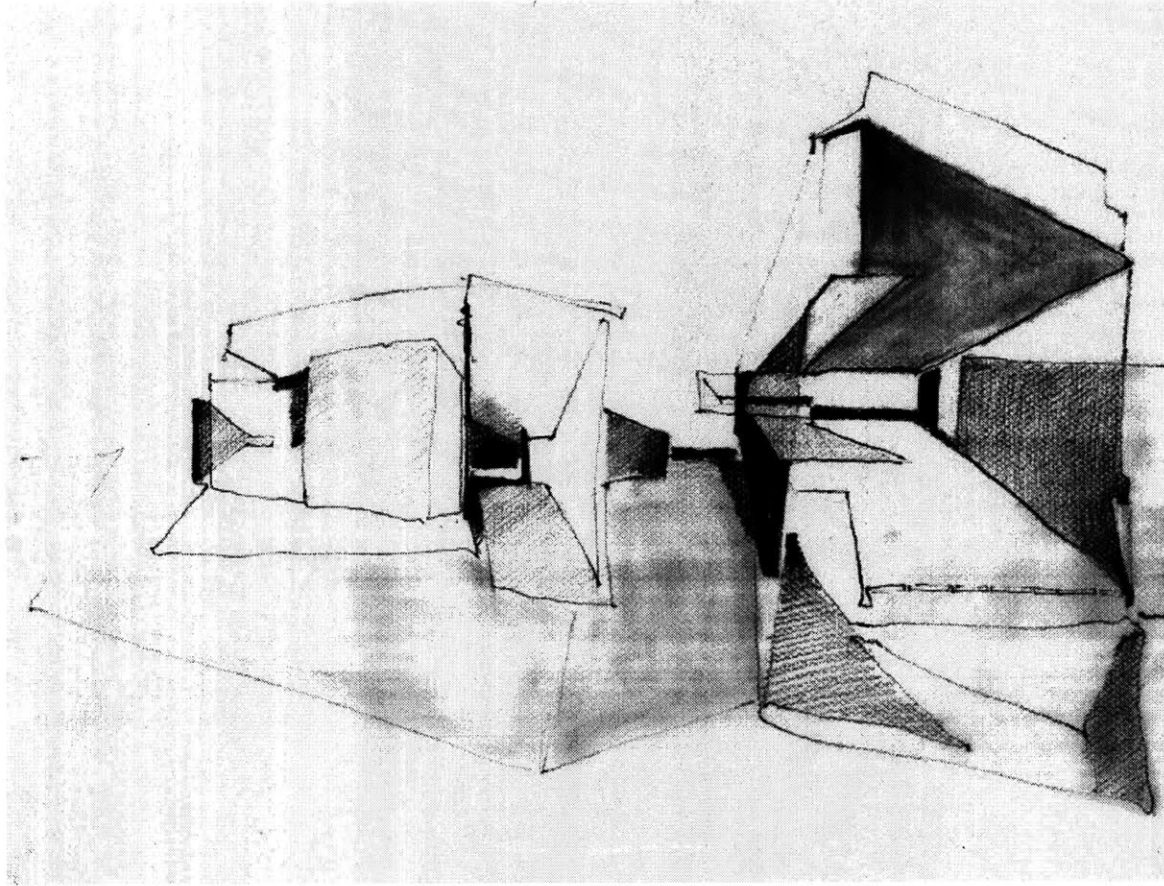Departmental Committee of
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A special thank you to both.

To friends!

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ABSTRACT

A thesis for architecture in three movements.

|	
I. Tempo molto moderato. (Theory.)	*(2767 w)*
II. Allegro. (Architectural Expression.)	*(2283 w)*
III. Gusto. (Final Building.)	*(3102 w)*

To see space, one needs a language. To express space, one needs a vocabulary.

I have built on an existing vocabulary – one found in the writings of Faulkner – of non-linear narration. Through a series of studies I attempted to translate this literary construct into a language of spatial and experiential expression. In a dialogue with the literary, I added an architectural vocabulary by identifying existing buildings that possessed non-linear qualities. Together, this language and these vocabularies form my tools for articulating my vision.

In music one can have shifting tonal centers. In literature separate points of view can create simultaneous stories. How can architecture create a multiplicity of spatial experiences and thrive from an intersection of art forms? From my studies I have abstracted two components that in dialogue lend each other greater significance. The *movement* through the building — necessarily sequential and physically linear — complements the *experience* of the spaces: non-linear and open for multiple interpretations. I attempt to express this dichotomy by setting up a tension in the architecture of anomalies to the expected. The space challenges perception and inspires in the moment of overlap (or gap) a re-thinking of the conventional and the usual.

The building I will present is the Center for Contemporary Composition. Housed within one building, a multitude of programmatic activities cater to an environment of contemporary music creation and performance. It is a place for short-term residency that encourages idea exchange and intense creativity within a group of composers coming from diverse backgrounds. The building is the medium that renders new ideas in an architectural language, an evocative language derived from an external yet parallel source.

Thesis Overview
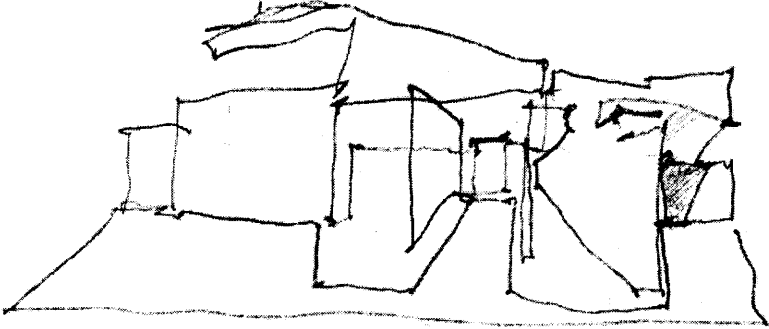
A thesis for architecture in three movements.

I. Tempo molto moderato. (Theory.)

Hinge

Filters and Multiplicity

Perception, Anomaly, and Device

Translating theory + architecture

II. Allegro. (Architectural Expression.)

Defining a vocabulary

Organization and experience

Non-linear | linear

Mediating architecture + theory

Experience visually conveyed

DNA of the project

III. Gusto. (Final Building.)

Testing four sites, then three, then one

Between water edge and city

Prelude

Composers, Musicians, Public

Building

Interlude

Conclude

Narrative, Architecture, Concert Halls, Music

Acknowledgments

It is rewarding to stand in the Final Final Review of the Masters program and glance at the work that surrounds me physically, and engulfs me mentally. This project has fulfilled many goals: it has been revealing, viable, and provocative, a thesis that opens doors to new outlooks.

It wasn't necessarily I or I alone who opened these doors. Other people with whom I have had the good fortune to work and who have played significant roles academically and personally have opened doors and unveiled various outlooks. How I come to this place of being able to articulate my thesis is a result of those who stimulated the sharing of ideas.

Ann Pendleton-Jullian has taught me many things, mostly, as she writes in *The Road That is Not a Road*, that architecture is an endeavor not a result and that what is important is that it remains open for discussion. Architecture takes fermentation time. It requires maturation in the realms of physical design and of the intellect—both of which she has inspired me to strive towards. Bill Porter inspired a level of thinking and understanding that drove my ideas to deeper levels and that will continue to guide much of my search in architecture. Kelly Wilson's support and insight over the past three and a half years has been invaluable. He gave me a visual language with which to express myself. Stefan Hakenberg gave music to the project, both literally as a composer and conceptually with his insistence that a building for composers and contemporary music might be different, and might even provoke new interactions.

I thank Stanford Anderson, Head of the Department of Architecture, for his continual interest and support. I thank Dean William Mitchell and everyone else at MIT, including the HQ group, the faculty, and the staff.

Finally, I thank my four parents: Dad and Ann and Mom and Manfred for the love of language, an encouragment to follow dreams, and the trust in my ability.

The best is for last; to Nader Tavassoli I owe more than a thank you. You have been my smile throughout with your support, love, and time. I am fortunate to have someone like you to stand next to.
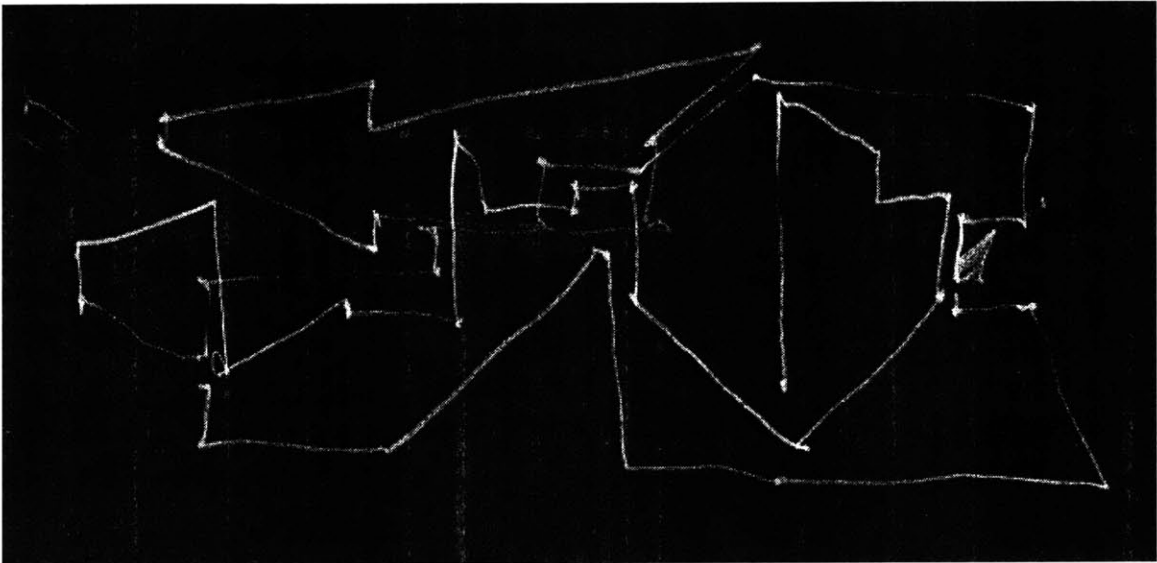
Non-Linearity as Architectural Narrative:
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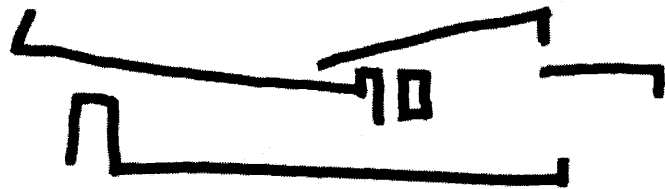
A thesis for architecture in three movements.

I. Tempo molto moderato. (Theory.) (2767 words)
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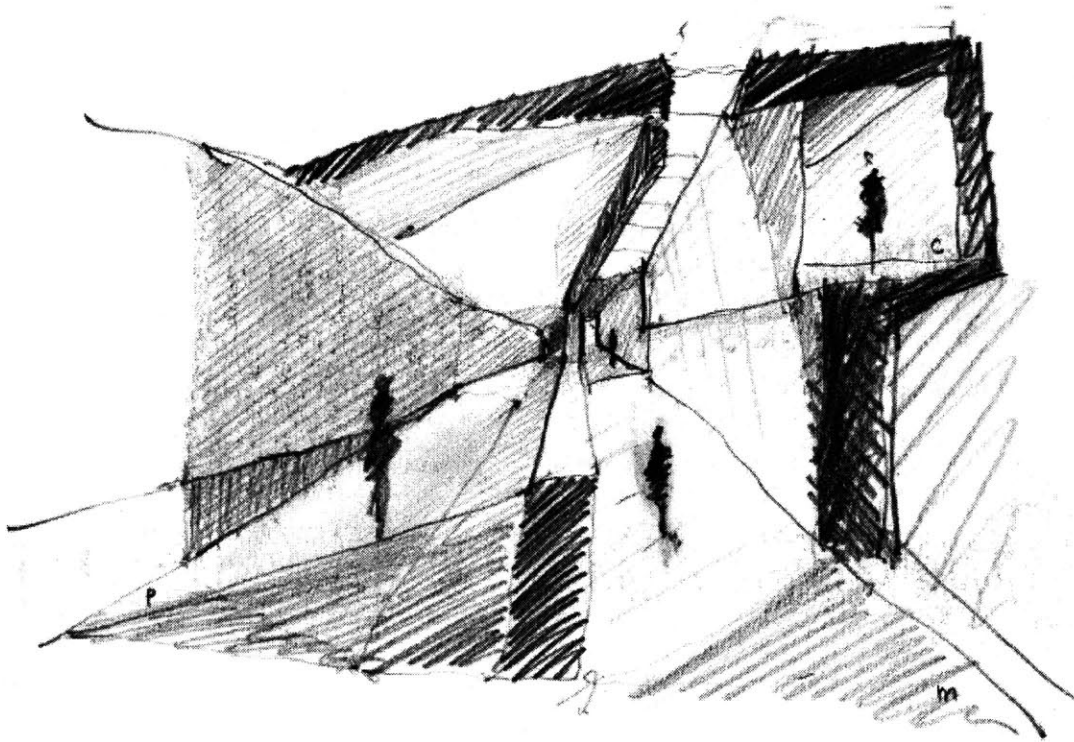   musiC will be answered by
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                   - only heard

john cage

Introduction

In order to succeed, this architectural thesis ironically relies completely on its incompleteness. Questions that remain unanswered, decisions made one way which could have been made another, and possibilities for new investigations are what I take with me and what will spawn new projects in the future.

Developing an understanding of the relationship of theoretical exploration to the design process underlies the thesis. I hope to better understand theory and its interpretation as a symbiotic agent in the creative process while simultaneously recognizing architecture as a physical, spatial endeavor.

Theoretical discourse acts to motivate design yet paints an abstract image. Words, ideas, concepts, and abstractions are operants of the theoretical. To move design from the abstract and the diagrammatic, architecture must draw upon and exist in the realm of the tangible and physical. Ultimately, it needs to service habitation and in doing so, stimulate consciousness of the space. For it to do this, architects need to address the combination of spatial intricacies, the phenomena of experience, materials, and program.

I. Tempo molto moderato. (Theory) (2767 w)

Figure Previous Page:
Mozart, Fugue VI. excerpt.
Inverse relationships in
music score act as hinge.
(Source: William Porter)

Music and Architecture

As John Cage suggests, architecture and music are not separate. Many architects and scholars have brought them together to investigate the relationship of the two art forms and find understandings true to one field that have ramifications for the other. What makes the comparison intriguing and profoundly constructive are the parallel structures of music and architecture.

The specific semantics of music composition does not play a significant role in the thesis, though ideas of tonal centers, shifting centers, counterpoint, double counterpoint and the physics of the octave have been part of the design discussions. The role of music is that of an art form parallel in the creative processes used to create both music and architecture and in the experiential and perceptual influences. Comparison is constructive because of the act of reciprocation made possible when music and architecture come together. If we consider the two as hinged, then they can be said to exist as separate entities that exert influence on each other and are in relationship to one another at some point of joinery. The hinge relationship occurs in the performance of music in a space – one art reflects itself onto another.

Figure:
Examples of graphic notation systems.
(Source: Goode, "Is Music Metaphor." *VIA*, 44.)
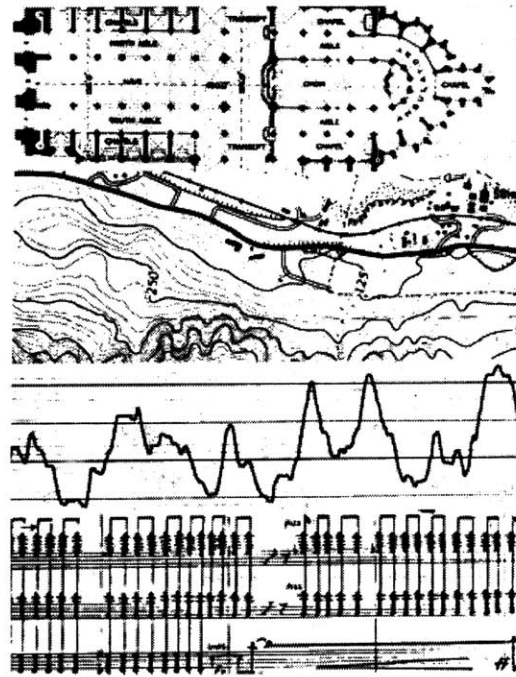
This reflection is quite literal in the reverberations heard when sound waves hit a physical surface. Conceptually one can also speak of reflection. Interpreting impressions of the spatial qualities and giving them back in a piece of music are forms of reflection.

The hinge binds building and user; specifically in this thesis — a center for music composition — it links architecture to composers and musicians. There is an implied reciprocity – the user inhabits the building, which in turn provides the arena for the performance. In this relationship both are changed as they act upon each other. Taking this idea one step further, the change in relationship expresses a 'dexterity of meaning'. The user changes our perception of a space by filling it with music; music is changed depending on the space in which it is performed. The hinge thus acquires new significance in physically embodying the flexible link between the understanding of one art form and another. Dexterity of meaning draws upon the interface between music and architecture – both gain a new meaning through interaction. Reciprocal impact of the art forms generates a reading of architecture and of music that is malleable because they add layers of meaning to one another.
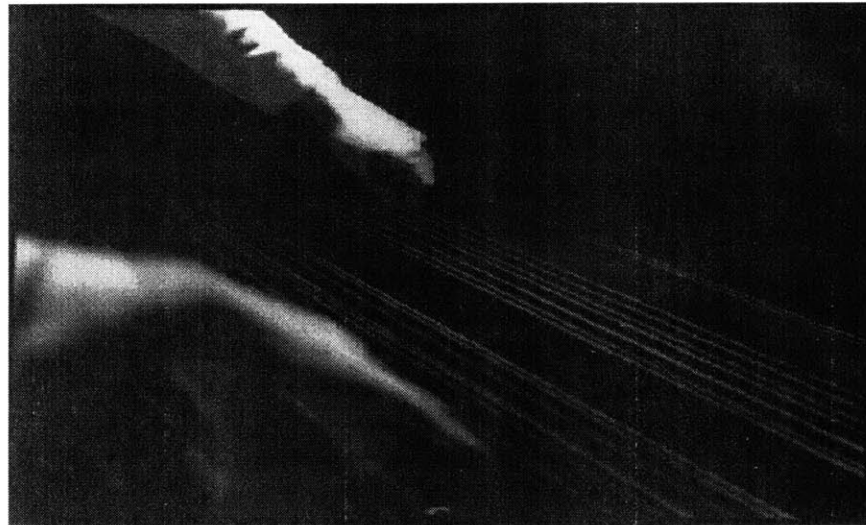
Narrative

Narrative is another structure that lends itself to a comparative investigation. Each art form gains a depth of meaning through analogous comparison of narrative, music and architecture. Architecture achieves a richer understanding from the abstract concepts generated by the three art forms. A symbiotic relationship between the three develops where practices and principles of one art form stimulate a new reading of another, which in turn allows for a renewed reading of the original.

In effect, there are three components of the theoretical underpinnings of the thesis. The three art forms act in a triangular relationship to one another and can be said to connect in a three-way hinge.

Architecture
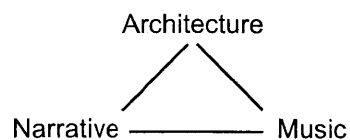
Narrative ————— Music

1. Martin, "Architecture as a
Translation of Music,"
Pamphlet Architecture 16, 16.
2. ibid, 16.
3. ibid, 16.

Source: Martin,
"Architecture," 47.

Narrative is a filter through which I gained another understanding of architecture and music, and learned to see the potential relationship between the two. The architectural historian, Elizabeth Martin conceptualizes the phenomenon of the filter in "Architecture as a Translation of Music," (*Pamphlet Architecture 16*) "let's say…that there exists a definable membrane through which meaning can move when translating from one discipline to another. What I mean by membrane is a thin, pliable layer that connects two things…The membrane is similar perhaps to the role of a semi-tone … a transitional sound heard during articulation linking two phonemically contiguous sounds, like the *y* sound often heard between the *i* and the *e* of quiet."[1] For Martin, the layer that connects two things is the middle position between music + architecture.[2] This suggests an interface from which meaning is taken and reiterates the malleable nature of the interaction that can occur with different art forms.

Martin's goal was to "explore as a DESIGN TOOL the idea of translation defined as a 'rendering of the same ideas in a different language from the original.'"[3] Rendering new ideas in a different language derived from an external yet parallel source is the foundation for my thesis. The aim of the thesis is to utilize the process of translation as a design tool and as a generator of an architectural language that has spatial, programmatic, and experiential implications.
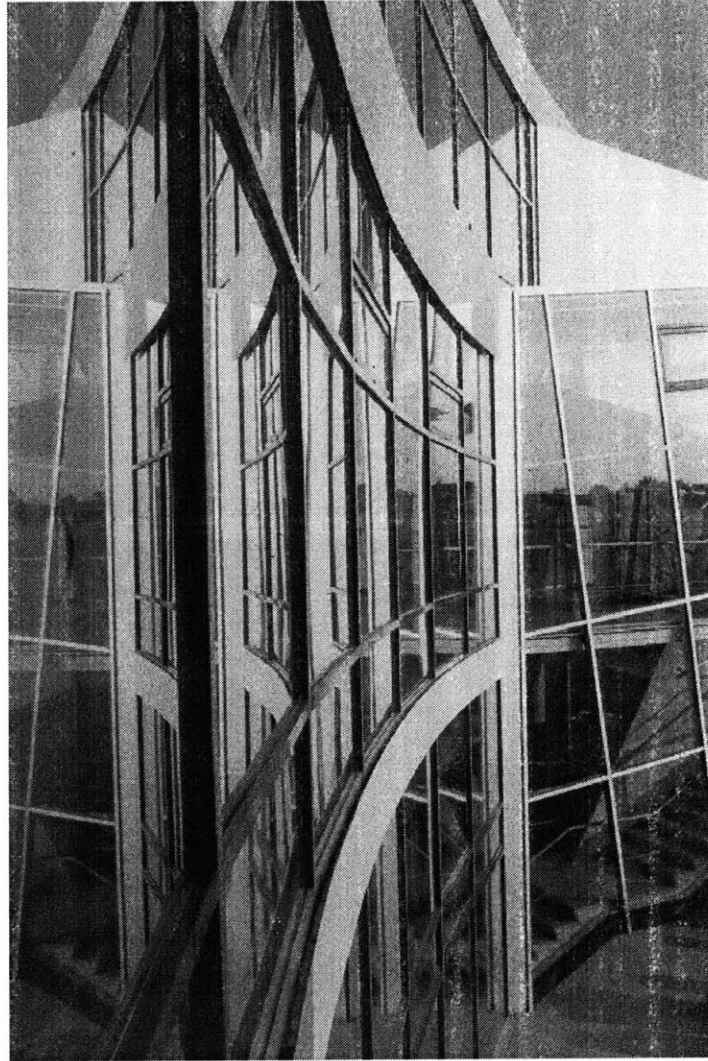
Figure:
Reflecting surface gives a
multiplicity of readings.
(Source: Gauzin-Muller,
Behnisch, 156.)

1. Toorn, *The Invisible in Architecture*, [32].

Narrative positions itself not at the middle position but as part of a trilogy. The interface of narrative, architecture and music creates a condition of associative thinking and blurred definitions. We gain new insights because our consciousness of meaning suddenly reaches beyond a single condition and considers one event in light of another. Multiplicity, forced into the foreground, pushes singular, one-dimensional readings into abeyance.

Gilles Deleuze speaks of this phenomenon of suggestive, and open-ended experience in his notion of the "and." It is not an "and/or" situation but an "and/and" experience.

> "Multiplicity is precisely in the AND, which does not have the same nature as the elements or the sets. The AND is neither the one nor the other, it is always between the two, it is the boundary, there is always a boundary, a vanishing trace or flow, only we don't see it, because it is scarcely visible. And yet it is along this vanishing trace that things happen, becomings are made."[1]

Events act as complements, in that one gives cues and is a datum for the other. This thesis looks to investigate an interface experience of multiple forces or influences – the AND. The AND links narrative and architecture, architecture and music. It also speaks of an experience, something that can be understood as this AND that. The project hopes to generate a design proposal that speaks of dichotomies and overlapping perceptions. It investigates an architectural language that will stimulate a multifaceted spatial experience.

Non-Linear Narrative

Non-linear narrative draws upon multiplicity, simultaneity, fragmentation, and holistic understanding of relationships between events rather than temporal sequences. The non-linear relates to the human experience of contiguous events and awareness of parallel worlds. It refers to multiplicity of events, in the sense that one event occurs or is experienced in many different ways. Furthermore, it talks of blurred delineation of boundaries in that edges and defined zones overlap.

The motivation for looking at non-linear narrative and in turn non-linear experience in architecture, developed from my interest in the *multiple* as a phenomenological experience/event. The presence of more than one force acting at a site or in a given situation generates an energy and tension. This thesis looks to capture the dynamics in architectural space that dual or multiple influences create.

1. see Rakatansky, "Spatial Narratives." *Strategies in Architectural Thinking.* Cambridge, MA: MIT P, 1992.
2. Smitten, *Spatial Form in Narrative*, 13.
3. ibid, 19.
4. ibid, 19.

If non-linear experience calls upon multiplicity, simultaneity, fragmentation, and holistic understanding, then we might expect a discussion of it to have its origins in multiple sources and point of view. Three theories inform the concepts and discussion behind my thesis. First, there is the literary theory formulated by Joseph Frank in the late 1970's on "spatial form in narrative." Second, David Bordwell's chapter, "The Viewer's Activity" in *Narration in the Fiction Film*, investigates the viewer's experience of fiction in film and sheds light on non-linear perception and cognitive processes. Third, varying interpretations of William Faulkner's *The Sound and the Fury* (1929) give a more concrete understanding of the literary expression of non-linear narrative.

Literary theory has shown that narrative operates in much more complex and indeterminate ways than had been previously thought: beginnings do not constitute definitive origins, development is not seamlessly continuous, and endings do not provide definitive closure.[1] For example, William Faulkner constructed narrative and time in fiction as events of slippage, consciously fragmenting the narrative. Spatial Form is a literary term coined by Joseph Frank in the 1970's to describe the process by which authors subvert the chronological sequence inherent in narrative. We read one word after another and therefore narratives are chronological sequences but "arrangement of events within this linear flow of words often departs in varying degrees from the strict chronological order."[2]

Spatial form includes subjective processes of perception that work in opposition to the linear flow of words. In fact, seen through this theory, narrative can be understood as units that are juxtaposed in space, not "unrolling" in time.[3] As a result, traditional narrative syntax can be disrupted in several ways: cutting back and forth between simultaneous actions, using distributed exposition, and presenting events or characters discontinuously.[4]
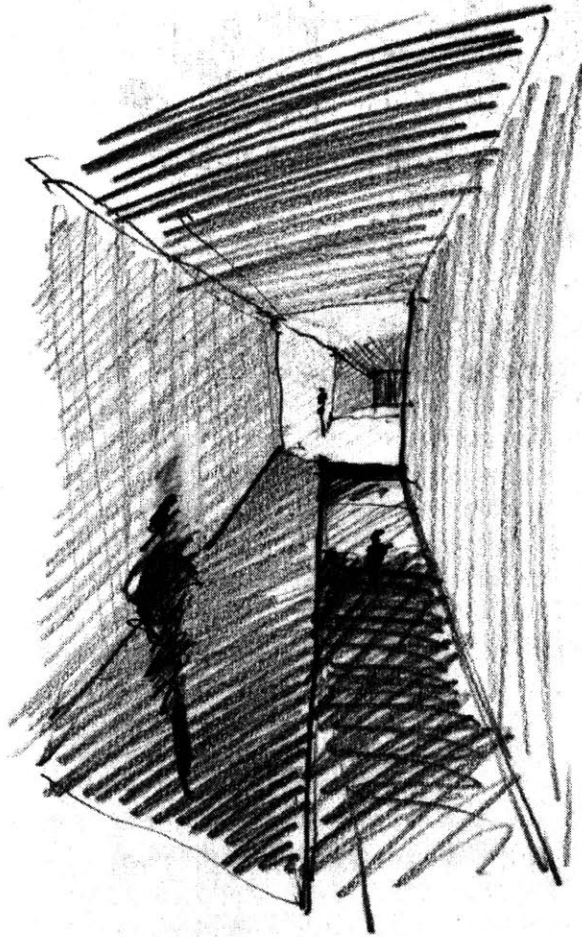
1. Smitten, *Spatial Form in Narrative*, 22.
2. ibid, 78.
3. Bordwell, "The Viewer's Activity." *Narration in the Fiction Film*, 31.

Fiction can then be compared to architecture: "Fiction has become an artifact like architecture: although a work of contemporary fiction – like a building – cannot be seen simultaneously as a single, complete whole, it – no more than a building itself – does not represent a chronological sequence."[1] The reader is confronted with an open-ended array of thematically interrelated factors that must be welded into a picture, i.e. a "spatial form."[2]

Where accounts of spatial form and David Bordwell's analysis of viewer's perceptions overlap, an interesting understanding of the phenomenon of non-linear experience unfolds. In spatial form theory, the reader must equate and create relationships not through traditional methods of sequence and analogy but through more holistic methods where parts are related to the whole. The reader must rely on perception and other methods of structure and relationship recognition to understand narrative.[3]

1. Bordwell, "The Viewer's Activity," 33ff.
2. ibid, 34.
3. ibid, 37.
4. Ross, *Reading Faulkner*, ix-x.
5. ibid, ix.
6. ibid, x.

Bordwell investigates this phenomenon through a general theory of perception and cognition. He argues that our prior commerce with narrative and the everyday world allows us to expect that events will occur in some determinate order, and in most films specific cues encourage us to treat each distinct action as following previously presented ones.[1] The viewer takes as a central cognitive goal the construction of a more or less intelligible story to the extent that even if information is missing, perceivers make inferences or guesses about it. When events are arranged out of temporal order, perceivers try to put those events in sequence.[2] In fact, Bordwell quoting Gombrich conveys that "our whole sensory apparatus is basically tuned to the monitoring of unexpected change."[3] The perceptual tendency is to construct a logical reading despite gaps or divergent events. The implications of non-linear experience are significant for it means that anomalies within the constructed framework effect the viewer's perception of the story. In fact, it can be argued that anomalies within the constructed framework heighten an awareness of events because they do not follow the perceiver's expectations.

William Faulkner's *The Sound and the Fury* offers a verbal illustration of the non-linear in literature. Unique visual dimensions, time shifts, intricate stream-of-consciousness, and allusiveness characterize his novel.[4] Further, the unexpected or unexplainable gaps in the text, truncated sentences, interruptions, and complex discourse mean that the reader must speculate to decipher a meaning. In fact, not only is the narrative non-linear in and of itself, but understanding the story becomes a non-linear experience. The result of this literary technique is that the words are understood "as we encounter them in their linear progression" while their impact generates "resonances inside and outside the text."[5] The events that are narrated occur in several contrasted layers of time. Each layer or chronological grouping is divided into fragments, which are rearranged to give the impression of a primitive chain of association. These disorganized episodes are later recognized by the reader as introducing key scenes or symbol patterns that recur in more easily intelligible contexts.[6]
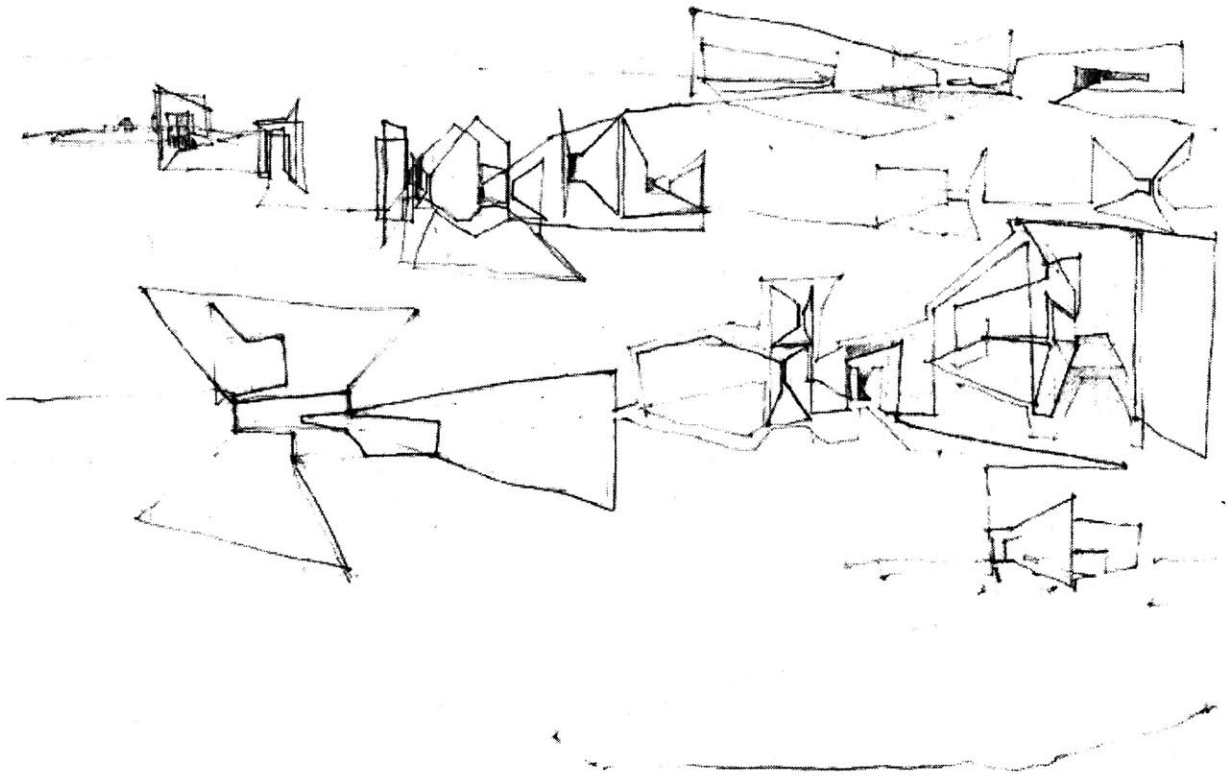
1. Polk, *New Essays on the Sound and the Fury*, 3.

Faulkner's method of writing *The Sound and the Fury*, seems to have generated this non-linear narrative. Through a series of sequentially written narratives, Faulkner created a story comprising numerous points of view and then augmented it with his own perspective to fill in the gaps.

> "I had already begun to tell it through the eyes of the idiot child since I felt that it would be more effective as told by someone capable of knowing only what happened, but not why. I saw that I had not told the story that time. I tried to tell it again, the same story through the eyes of another brother. That was still not it. I told for the third time through the eyes of the third brother. That was still not it. I tried to gather the pieces together and fill in the gaps by making myself the spokesman."[1]
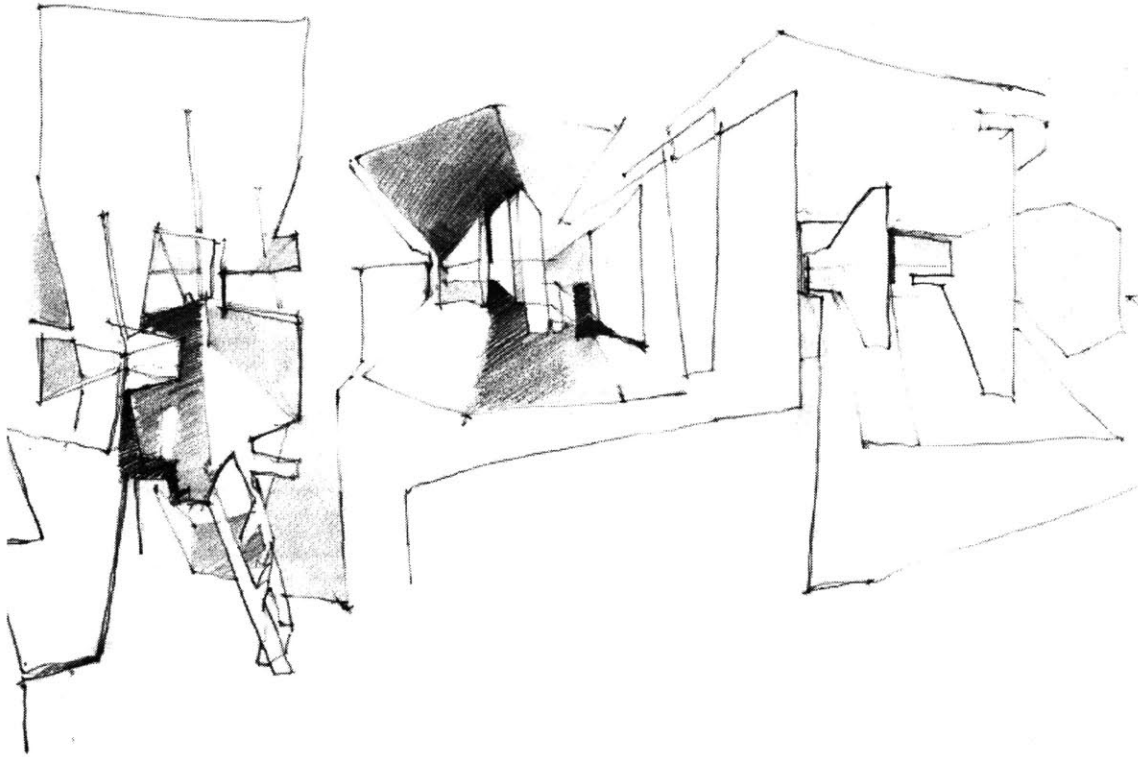
1. Swiggart, "Experiments in
Narration," *The Art of Faulkner's
Novels*, 62.
2. ibid, 64-65.
3. ibid, 75.

Even in stream-of-consciousness passages there are many shifts to ordinary discourse and to conventional flashback description.[1] Yet for the most part, Faulkner relies on the interweaving of various points of view and the associated interrelated narrative techniques to compose a story that works as a whole. In moments where there are sudden shifts in location or time sequence, similar locations, similar actions, or phrases make transitions possible common to more than one level of time.[2] In the novel, although the chronology is discontinuous, the symbolic language establishes atmosphere and tone.[3] This means that there is an underlying and recognizable continuity, though the form or expression of that continuity may not be a traditional or expected one.

1. Croset, "The Narration of Architecture," *Sexuality and Spaces*, 201.
2. Le Corbusier, *Ouvre Complete de 1929-1934*. 5th ed., 24.

Architectural Narration

While theoretical in its initial investigation, one goal of this thesis remains closely linked to architectural design and the creation of a building. Other issues specifically architectural in focus played significant roles in the process of translation. They ensured that the translation operated within the field of architecture and moved beyond theoretical conceptualization.

Reading within the field of spatial narration, I began to focus on the notion of movement. It is commonly claimed that buildings are 'frozen in time' (or 'frozen music', or 'frozen moments'), implying that temporality exists only in the experience of a building through time. People can then be said to "thaw" architecture. Experiencing a series of "frozen moments" establishes a relationship within the building. This occurs sequentially over a span of time. Movement as the physical act of walking through a building becomes the significant temporal dimension of architecture.[1] Moreover, this implies that the act of movement gives life and activity to an otherwise innate material.

Sequential movement through a building permits an experience of spatial qualities. In the *L'Ouvre Complete*, Le Corbusier refers to this phenomenon as *promenade architecturale*: " it is when walking, when moving that one sees ordering principles of architecture unfold."[2] A space gives clues about the architectural idea and movement allows its unveiling.

1. Croset, "Narrative of
Architecture," 201.
2. ibid, 205.
3. *Nuevos Paisajes. Nuevos
Territorios*, 6.

In this way the physical act of moving through a building begins to intertwine with the experiential results of that movement. We can understand movement through space as operating in a complex and indeterminate way. Thus, we can talk about movement as a series of experiences. As one moves through one and then multiple spaces, a sequence of individual spatial qualities accumulates, together making up one's perception and understanding of the whole building.

In his essay in *Sexuality and Spaces*, Pierre-Alain Croset refers to this as spatial narration, the temporal experience and perception of movement that buildings evoke.[1] Each portion of the space physically and visually experienced becomes part of the architectural narrative. Narrative provides the "selection and organization of visual material that allows the reader to imagine the experience."[2] Inherent to this is the implication that with a physical route, there is also a path of the mind, one that involves the interpretation and/or understanding of the space one moves through. Movement as a component of mental understanding involves the sequence of interpretations whereby each new experience creates new readings. Updating what one visually perceives or aurally experiences generates a flux in one's perception. Richness of spatial experience comes from the accumulation of multiple physical and visual realizations of a series of spaces.

> "Different interpretations of reality coexist, viewpoints multiply giving rise to a progressive capacity for simultaneous interpretations of various planes of reality."[3]

The final reading occurs not with the building but with the person's experience. Narrative in this definition is cognition by the perceiver.
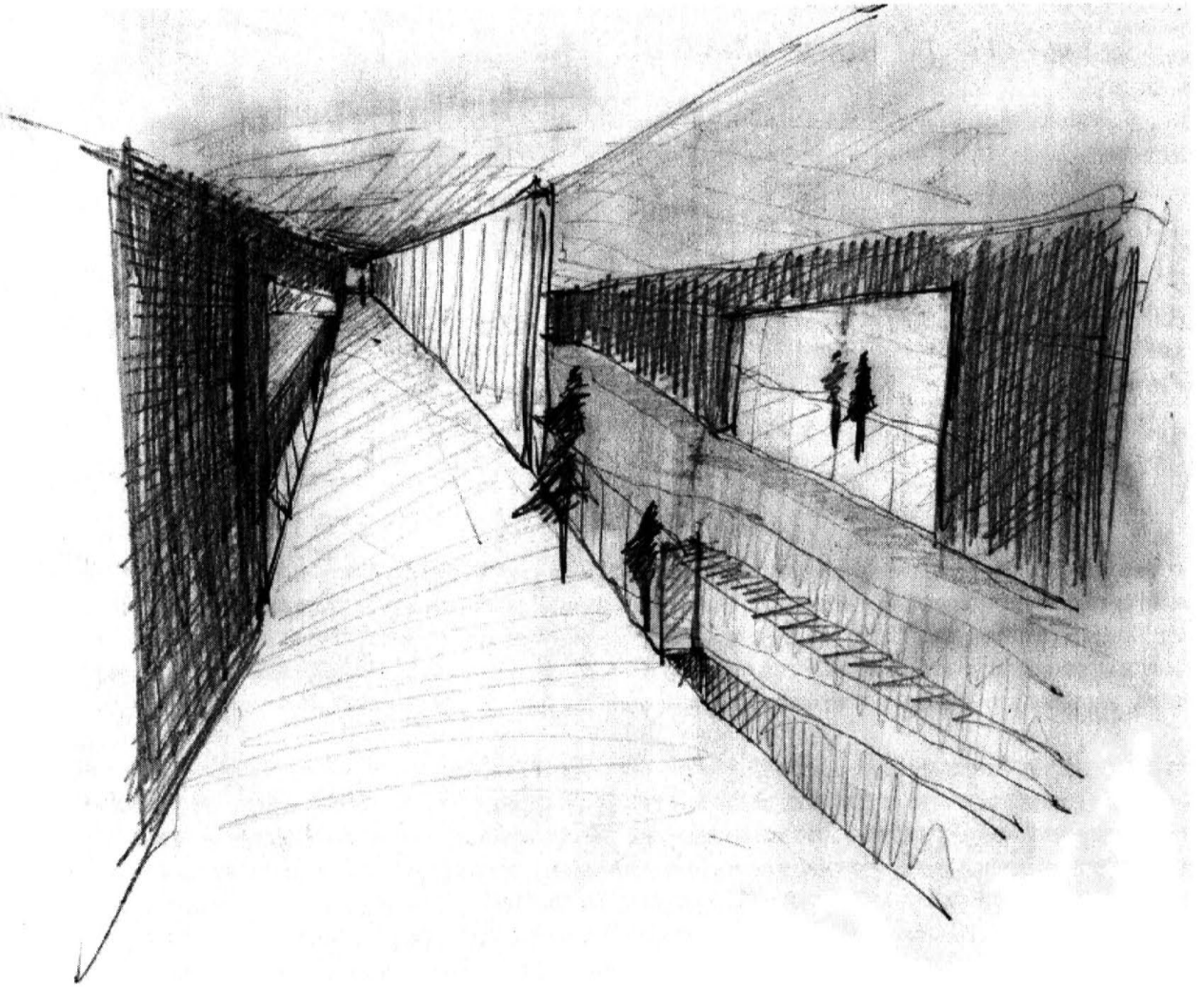
There are three elements which inform the theory discussion and the notion of the. Like Faulkner, I have approached the theory from multiple points of view. I first argue that music and architecture interact: music played in one setting is not the same as in another. This only tells a partial story. Narrative is the second component of my theory. Music, like narrative, like architecture exists in time, not outside it. Again, this is not all. Narrative, like music, like architecture, need not be linear. Finally, this all translates into an architecture that is complex and based upon movement and upon the experience of movement, which together create a non-linear experience.

II. Allegro. (Architectural Expression.) (2283 w)
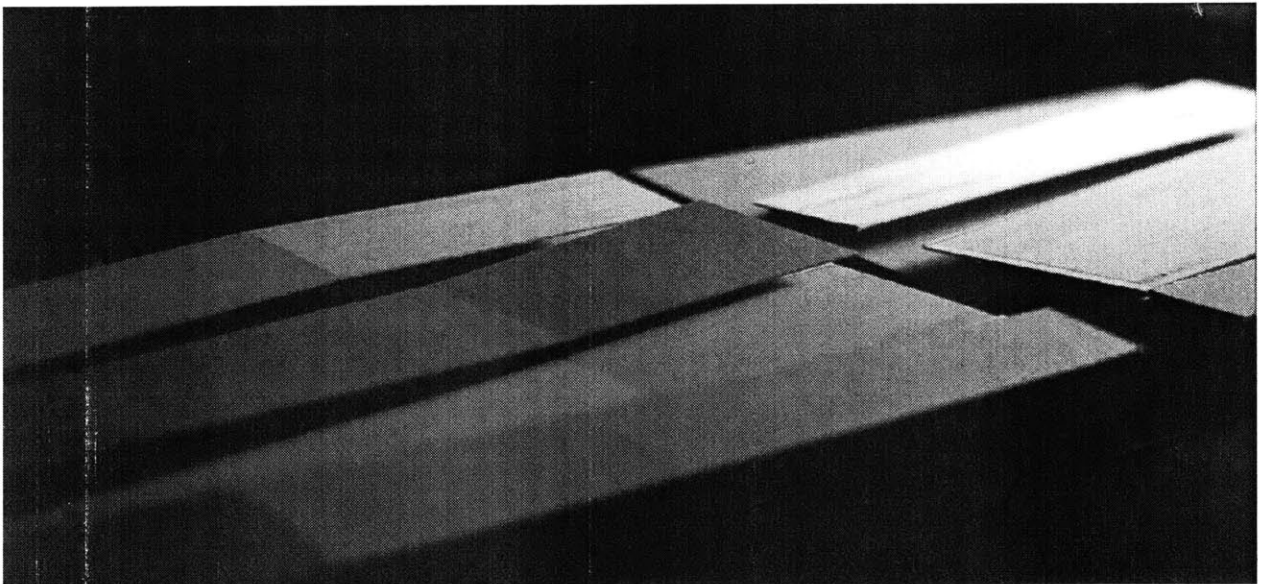
What developed from my initial research was the need for a clearer delineation of the non-linear in architectural terms and a clearer understanding of the role of movement and its effect on the non-linear experience in architecture. I started to look at non-linear spatial experience as distinct but interrelated to sequential movement. Investigation focused on two components: One, the movement through a space; two, the experience of the space. The physical movement through the space was by nature sequential, which implied directionality. This did not imply linearity, but suggested that for people to move and for a building to function successfully there must be an order of sequence. Just as movement related to the linear, the experience of a space found resonance within concepts of the non-linear. Architecturally, this suggested new ways of thinking about the organization (plan), the section, and the circulation. Folding, slippage, breaks, and stops expressed spatial orders, sectional linkages, visual experiences (looking back, catching glimpses), and physical phenomena (movement, retracing, crossing). Stated in other ways, concepts inherent to the non-linear expressed concerns inherent to architecture and design.

The architectural aim was to establish an evocative framework for multiple readings. Suggestive, specifically because of the design, one space could be part of two or more completely different circulation sequences thereby implying simultaneous readings and layering. A space can cause the eye to delve into the distance and flatten what the eye perceives in another instance, it can be landscape and architecture simultaneously, an interior suggesting the exterior, the constructed reflecting the natural. This implies a complexity of architectural intentions where a space or a sequence is concurrently part of multiple ordering systems. Yet these ordering systems aim to orient without becoming predictable. Recurring architectural elements and a structural language can weave though the building in a discontinuous manner. Continuity does not necessarily mean completion. In this scenario, disjunction serves to heighten awareness and makes the viewer discover a deeper meaning.
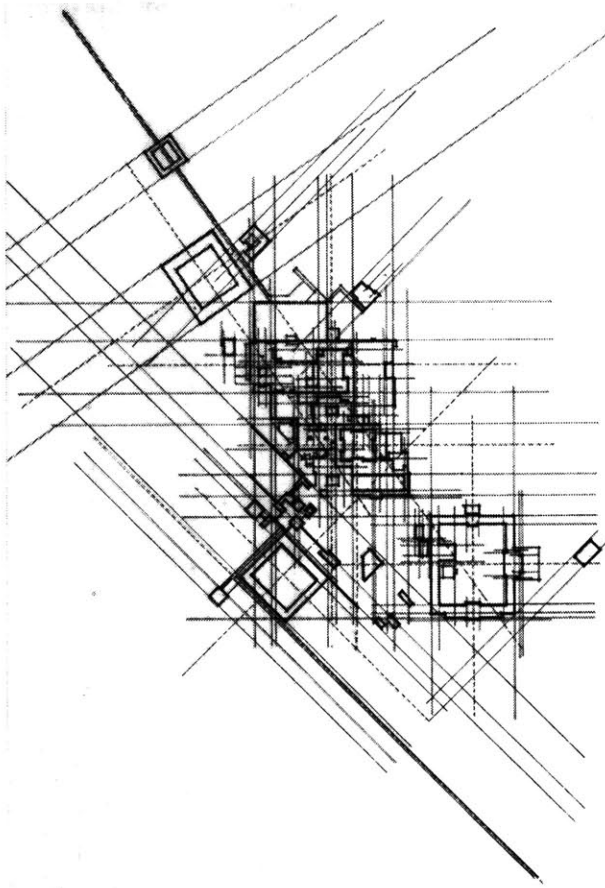
Fatehpur Sikrie, City and Citadel. India.

Building clusters define three different axial directions, which give orientation to the site. Traversing the site occurs by slipping and weaving through these clusters. Within clusters of one orientation, enclosures, openings, courtyards, and pathways slide along parallel axis. Individual buildings exist in separate locations and act as fragments: traces of a displaced ordering system.

Precedents

Looking at precedents of built architecture, I studied how architects had expressed qualities that followed my definition of the non-linear. For the most part, each example loosely used a linear organization in plan that provoked non-linear spatial experiences with the placement of walls, openings, and sectional changes.
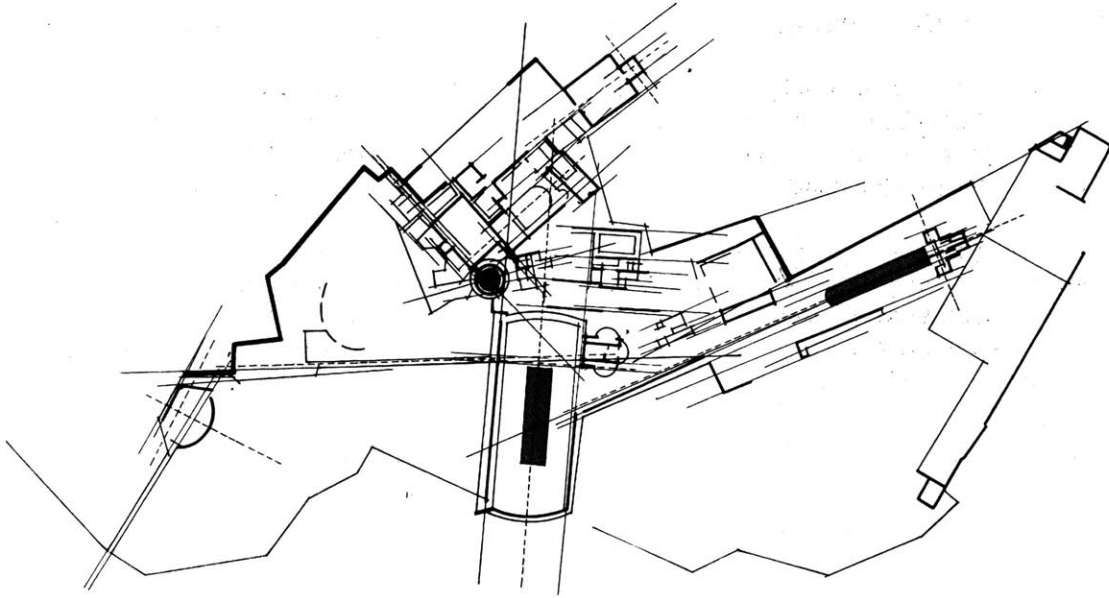
Hadrian's Villa, Tivoli, Italy.

Axial connections link disjointed moments heightening the axial emphasis at seemingly unrelated locations. Dispersed over the landscape, built areas are self-referential yet in combination form a singular experience that unifies the complex.

L'Alhambra, Granada.

Slippage occurs through orthogonal shifts in the axial relationships. Placing the entry so that a person enters off axis heightens the awareness of the spaces. Interestingly, the entry sequence is through convoluted narrow passageways and opens up into a dramatic courtyards. The passageways allow the courtyards to read as clear figures. A significant part of the architecture comes from associational experiences. Water in the main courtyard follows the central axis. It is calm and quiet and yet in the distance you can hear running water. The paradox of the noise and the calm triggers interest. The noise of the running water heard comes from a second courtyard. The animation of the spring recalls -- in contradiction -- the stillness of the previous water. One space preserves the memory of the space just visited.
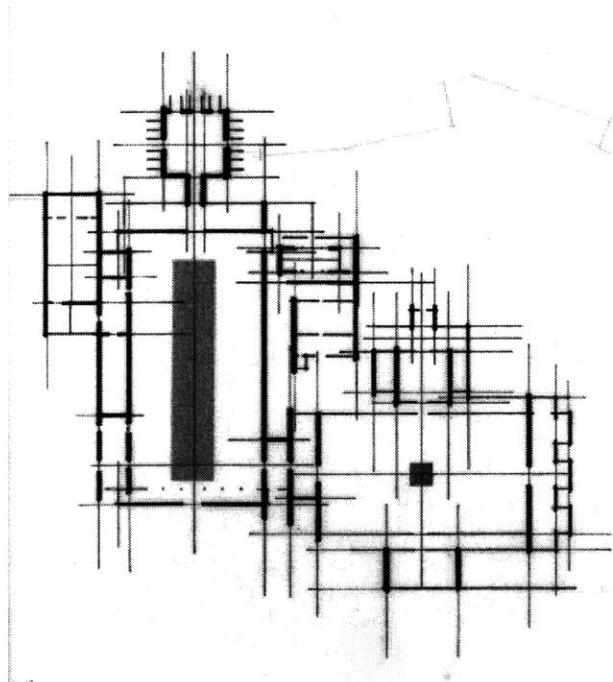
Wolfsburg Concert Hall, Hans Scharoun.

Within the elongated linear organization of the building, there are multiple axes. Gaps (between the entry foyer and the auditorium) are delineated with translucent materials (glass doors). Visual and physical connections generate the relationships between spatial zones. The fragmented axes give dynamics and movement to the building's composition. Directionality is implied but not given: it is obscure and must be discovered by the visitor.
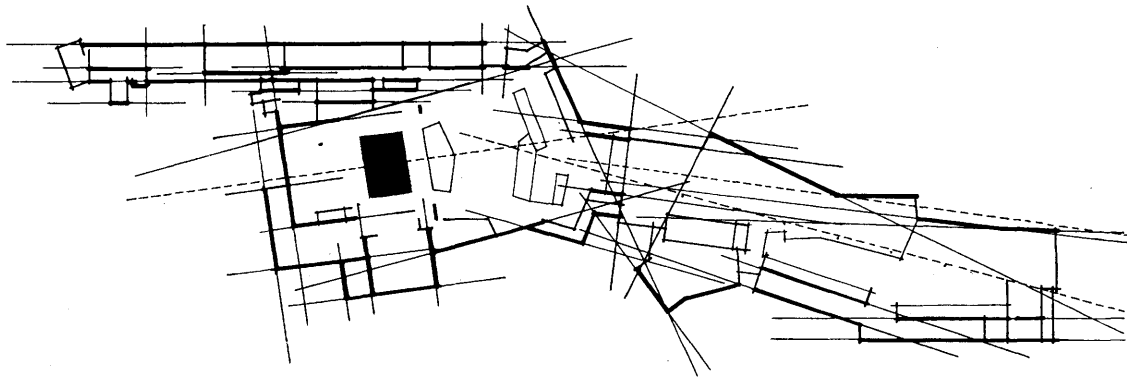
Helsinki Concert Hall, Alvar Aalto.

Multiple fragmented edges and axes splinter off of the strong edge defined by the linear facade. Moments in the building generate "pauses" in the space, defining gaps and indicating a change of use and spatial character. This creates spaces that weave and slip into each other.
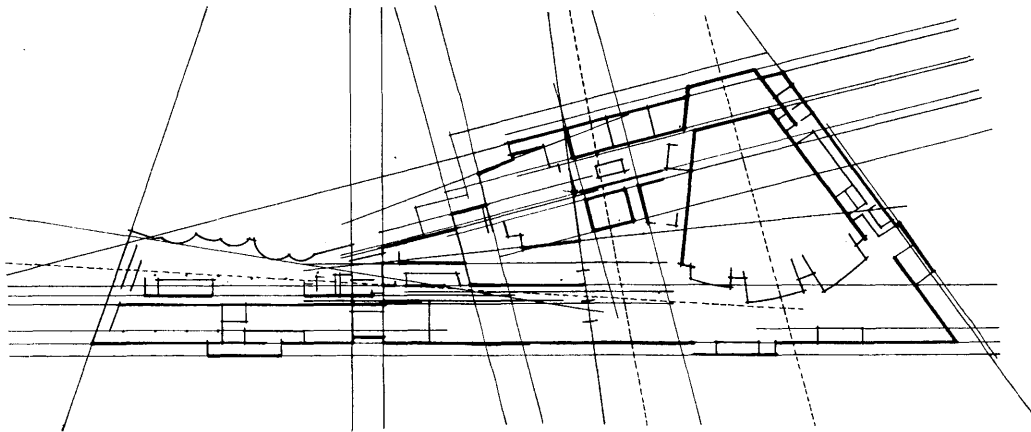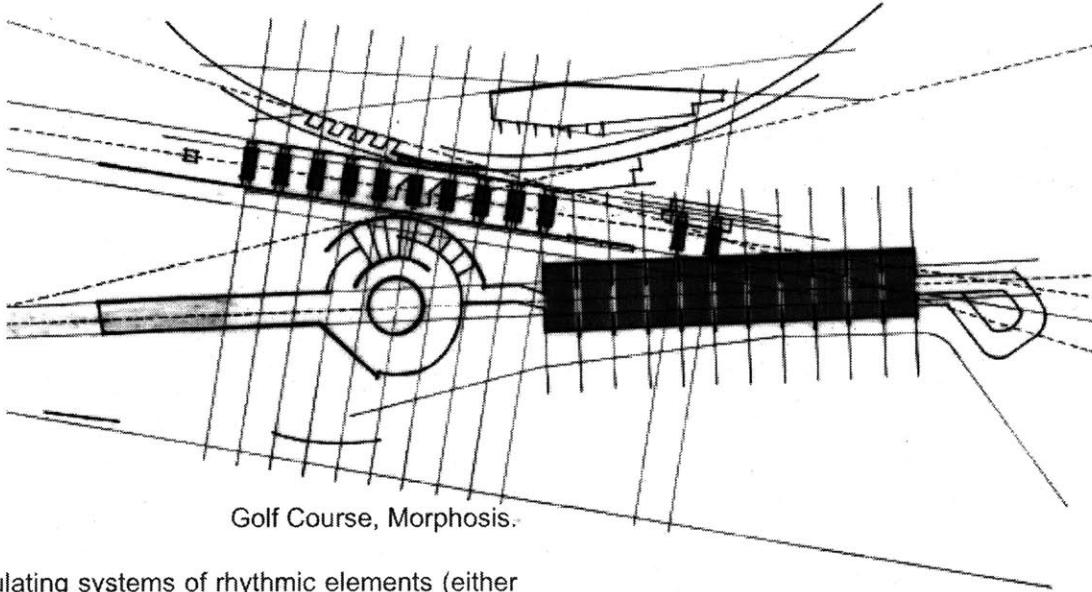
Golf Course, Morphosis.

Regulating systems of rhythmic elements (either structural or built objects) shift to generate three isolated components anchored by a circular element. Like three points of view that create a story, these segments give form to the complex. The elements generate a spatial story of compression, release, and directionality. Anomalies in the expected system occur through significant axial shifts and create moments of architectural interest.
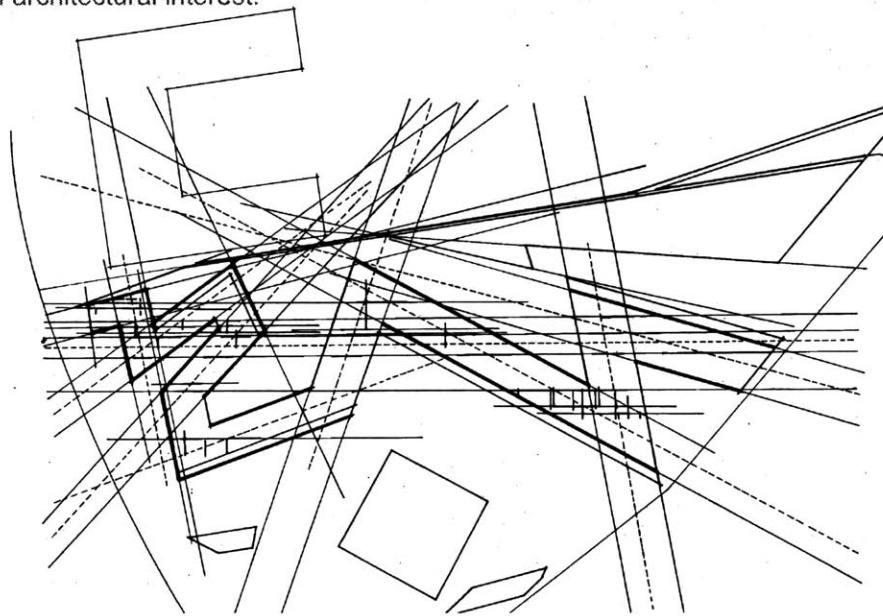
Jewish Museum, Berlin, Daniel Libeskind.

Spaces are defined by juxtaposing orientation and sudden shifts in axial direction. Each segment of space gains coherency with the horizontal datum (seen in the plan) that weaves through the linear elements. Depending on a person's perspective, the segments can be perceived as habitable spaces or as gaps between other spaces. The predictable framework is challenged as the axial direction of the space shifts. A visual path punctures the entire building; the physical path traverses the visual and weaves through the space, tracing and retracing the implied trail of the eye.
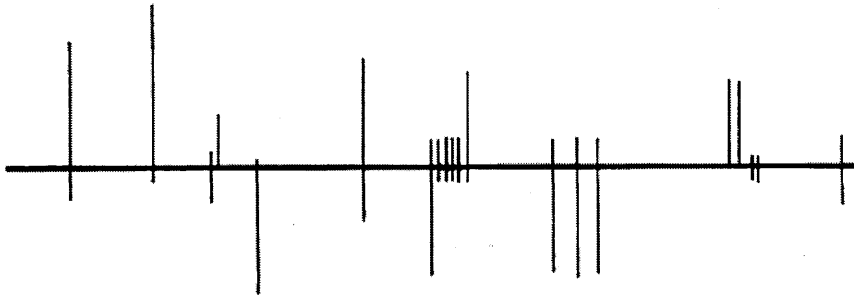
Sequence

The precedent studies served as a base for defining "sequence" within a linear/non-linear framework.

On a linear path, indicators (such as marks on a path or landmarks) register that distance has been traveled. The path itself offers minimal reference points because it is straight and uninterrupted.

As a path becomes less linear, the shifts in the orientation alone are enough to delineate distance because differences in the path's form act as landmarks.
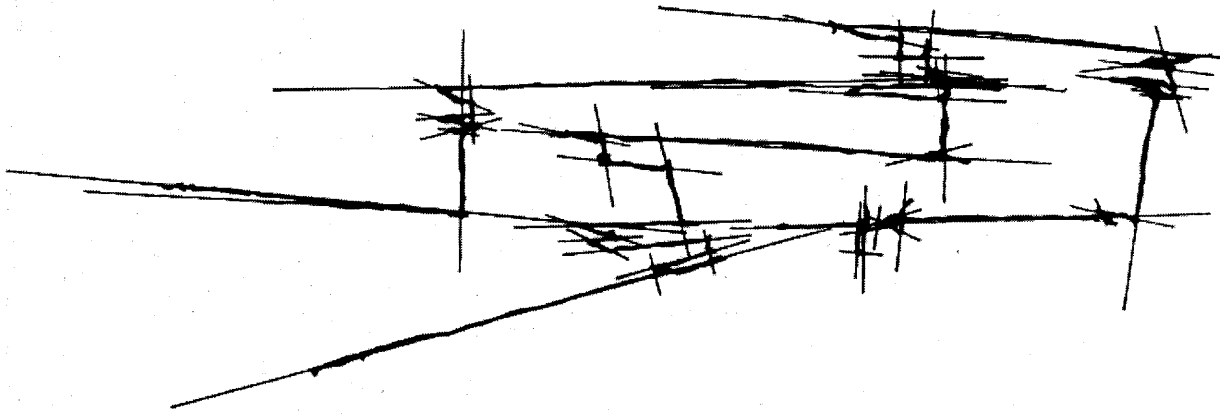
Sequences can also begin to introduce a complexity of intended directions. While the progression through a space is still implicitly from one place to another, the direction is shifted or fragmented so as to distinguish different spatial zones or paths of movement.

In non-linear patterns, the movement and its direction relate to seemingly unassociated sequences. Sequence draws upon devices shared by non-linear narrative: paths fragment and become disconnected, overlaps sever an expected continuation of movement, and abrupt endings fracture the connection of one place to another. While individual portions of a path may be linear, through the uses of these devises the sequence as a whole becomes non-linear.
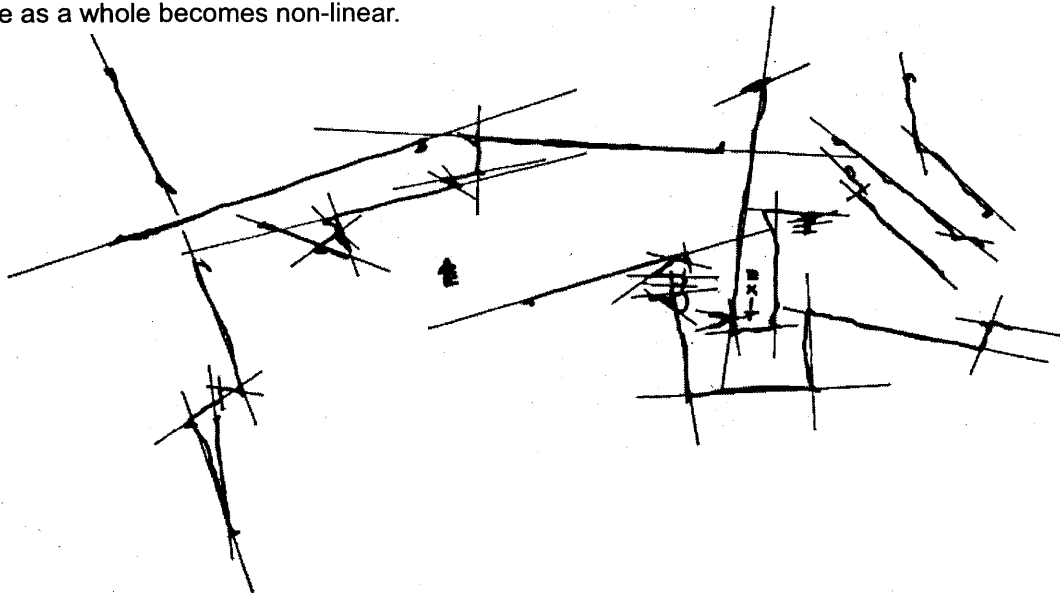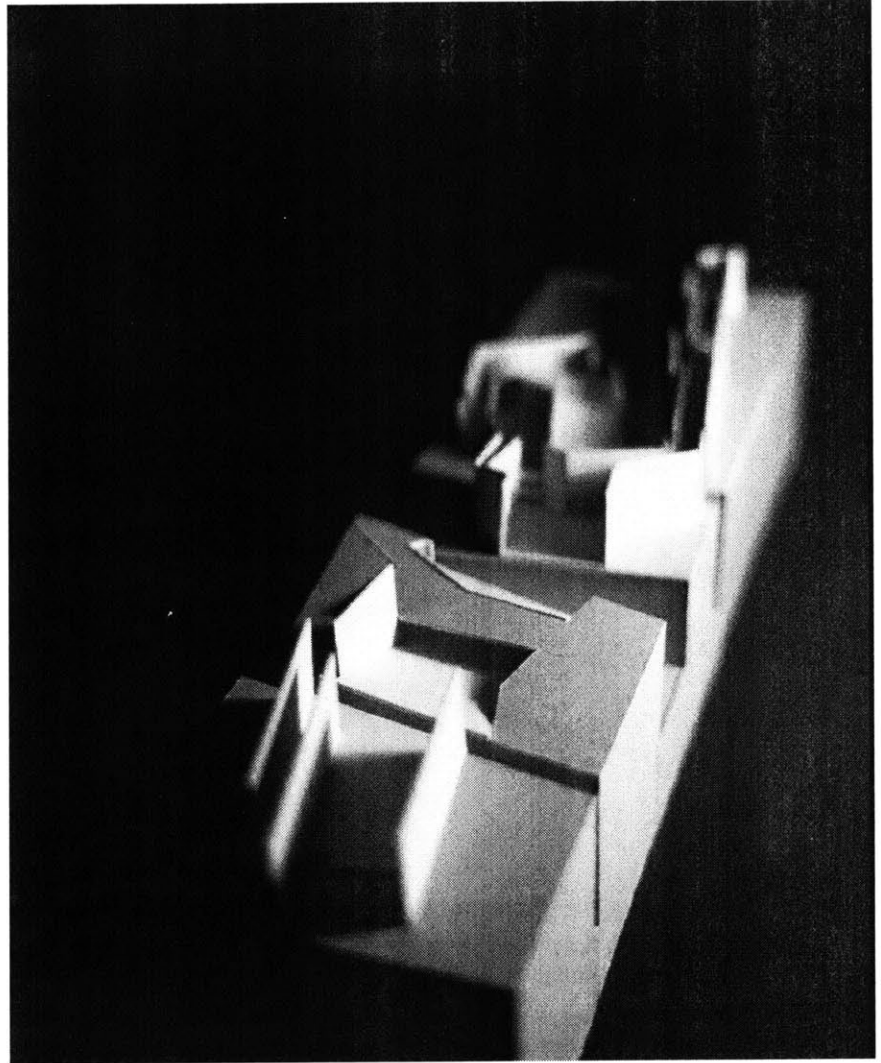
Translation Models
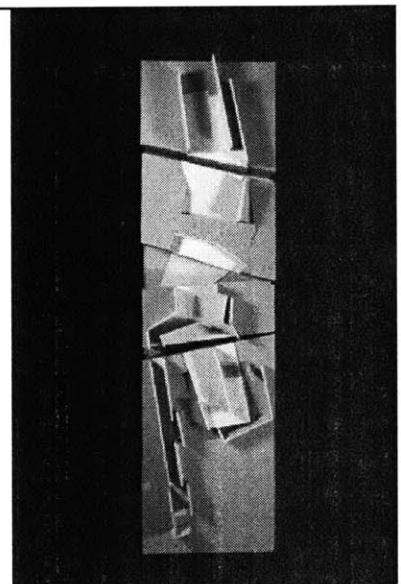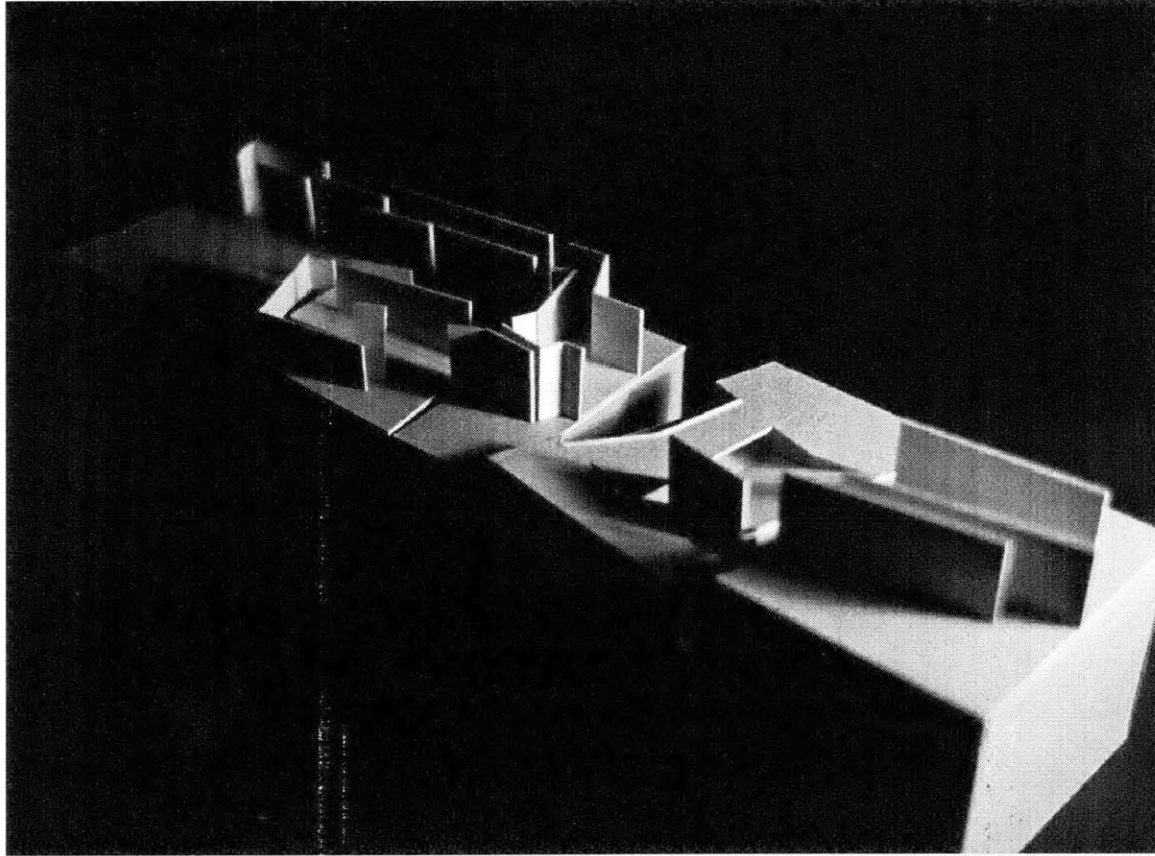
Taking cues from Hans Scharoun's Wolfsburg Concert Hall, I built my first "translation model" as an interpretation of sequential movement and non-linear experience. Devices of the gap and fragment were added to the plan of the Wolfsburg Hall. Displacement of materials in section (the floor material wraps into the gap) plays with the expectation of how a person is intended to move through this space. This model illustrates a dichotomy of non-linearity in its section and sequential movement in its linear organization.
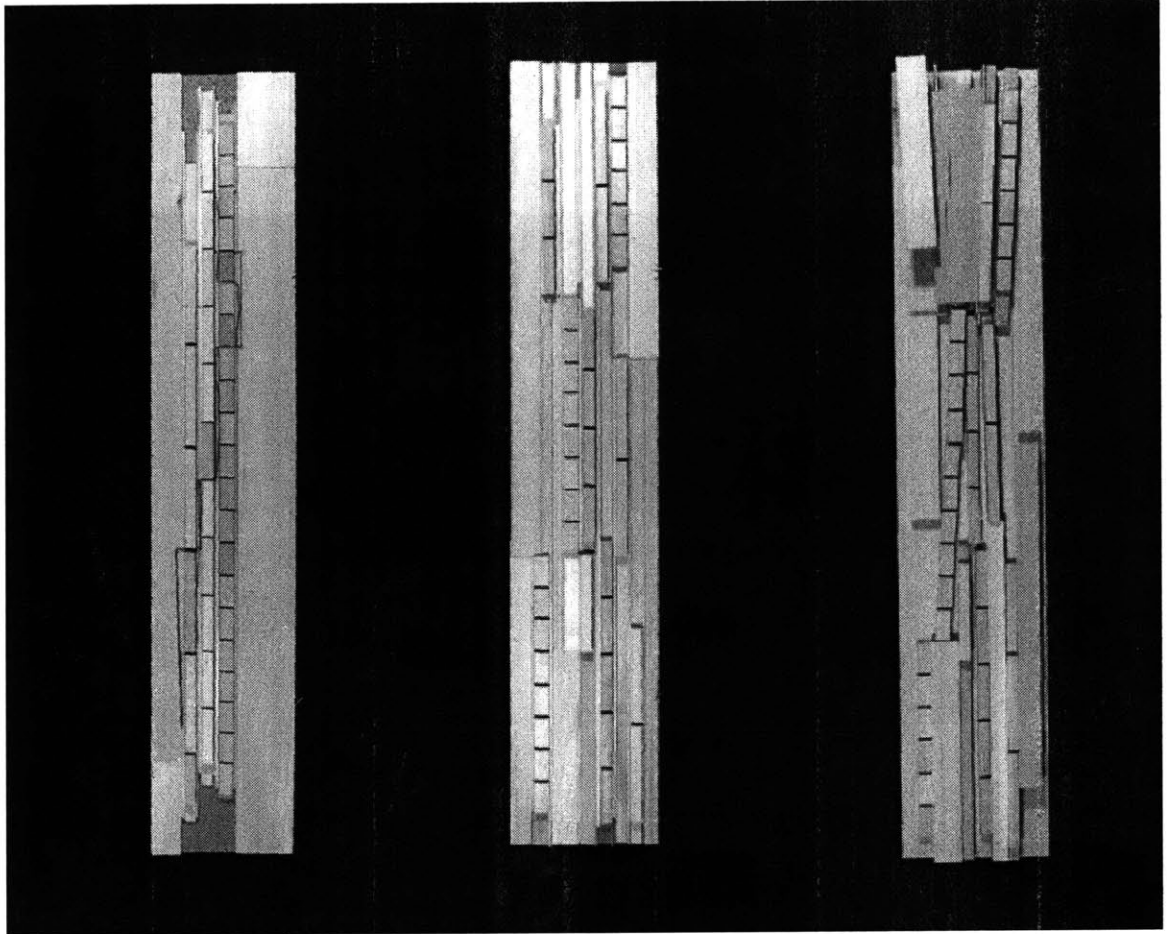
Devising explicit transformations of the linear to the non-linear allowed for a clearer depiction of their relationship. I built a linear model and assumed three paths of travel based on the building program: the public, the musicians, and the composers. To create a non-linear path, the elements defining the three paths were displaced from the initial linear axes. Movement was redirected and the pathway slipped between the gap created by the fragmentation. The displacement generated a new space between the offset edges. In the third iteration, physical overlaps in the architecture (as represented by the three block sizes) created moments of interaction between the users. The public crossed the path of the musicians and the composers wove across all routes.

Introducing a situation where one element shifts off of a given axis raises a further issue, that of anomaly and expectation. According to David Bordwell and Joseph Frank, both are quintessential components of the non-linear. The model opposite began by my extruding a drawn line from a sketch to create a path with space. A person would move through this easily-understood space, suddenly coming upon a series of fragmented segments that discombobulate the expected path of travel, only to return to another long, narrow, linear corridor. This anomaly in the expected path heightens the awareness of a person's movement through the space: "sometimes disjunction makes us discover a deeper meaning."[1] When another bend is seen at the end of the corridor, the first event has already foreshadowed the second and stimulates the *"what if"* question of anticipation.
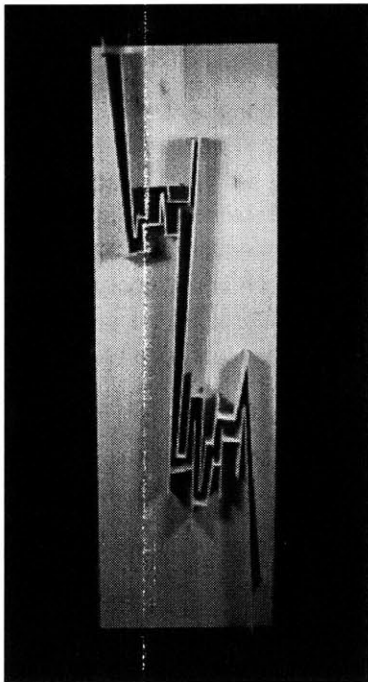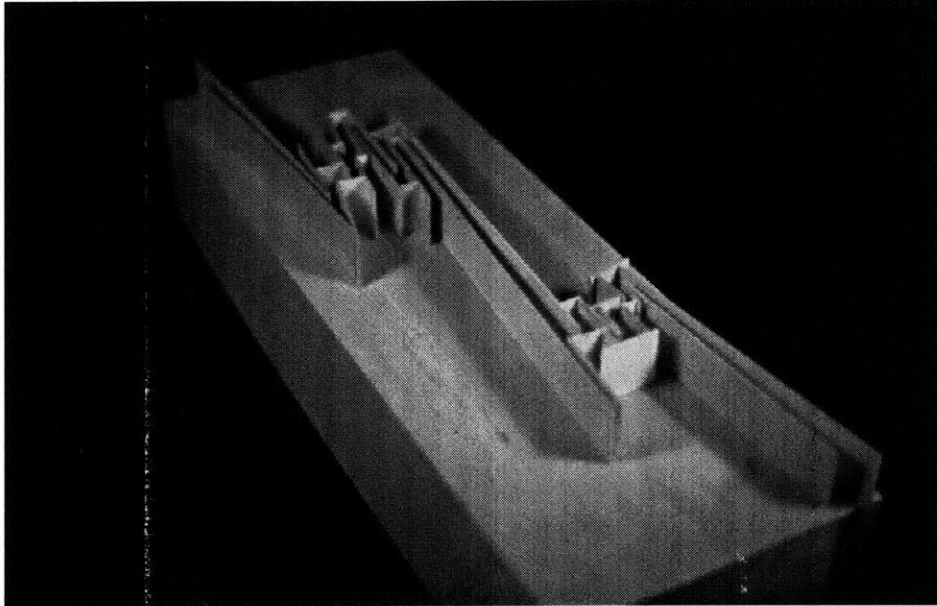
The "what if" must be answered and its answer must be meaningful, for it will then give meaning to the architecture. "Lessons" set up the scenario of the "what if" event and occur along the way. The parameters that you establish will set up the opportunities. Stated in other ways, the implications for what is possible within the parameters you set up are a direct result (and expression) of the parameters you establish. (Limited parameters allow for limited expectations of the space. Complex parameters need to be answered with complex expectations -- otherwise it's simply complicated, not complex.) Clues (light patterns, changes in direction, compression of space) indicate to the person moving through the space that something is about to occur. The culmination of this event answers the set-up and gives a place or resting point that permits the reading of the meaning.
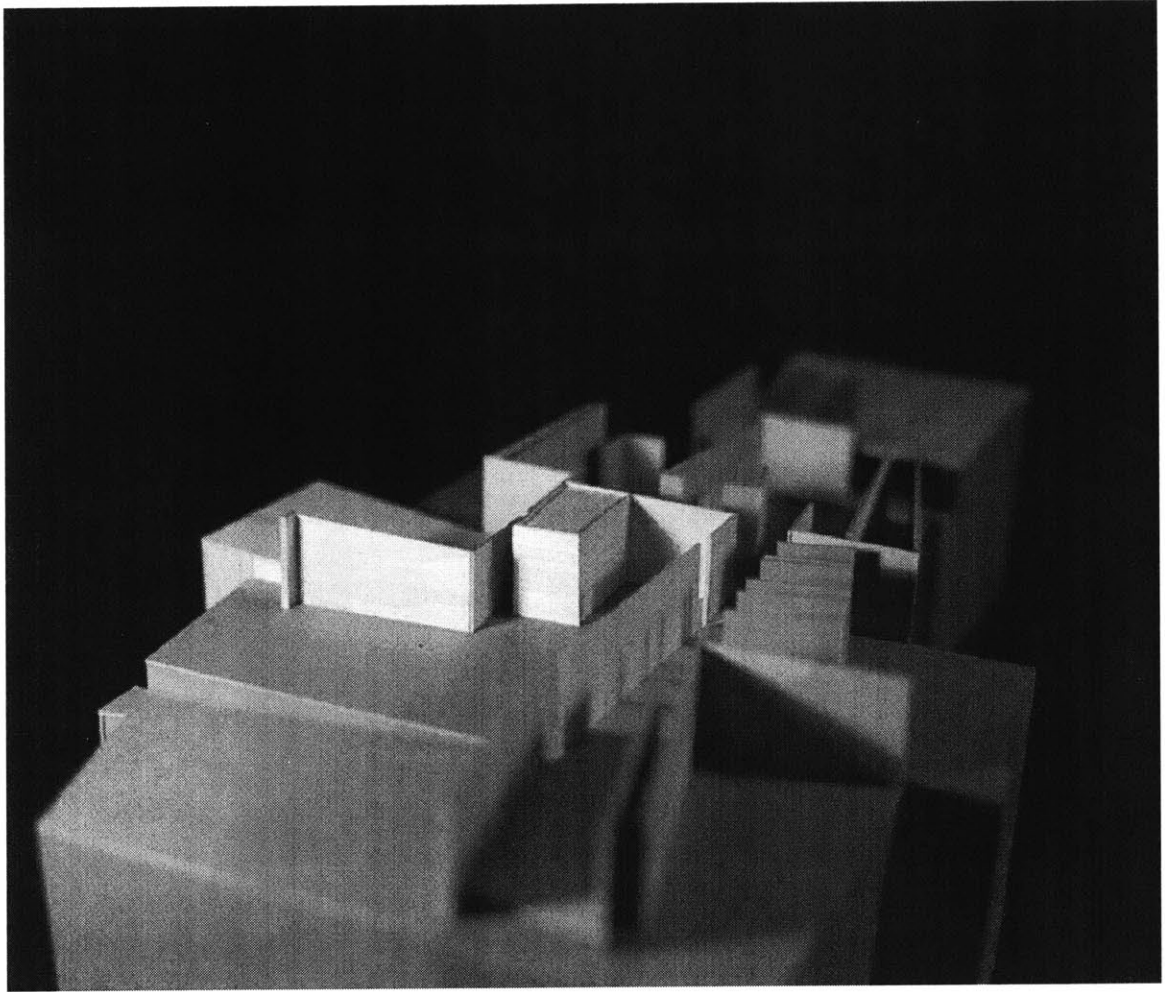
This model gives architectural cues that set up a series of relationships throughout the space. Visual cues occur along the path of movement: people see a courtyard to the right and to the left catch a glimpse through a window to another space, which they never enter but which serves to foreshadow the series of spaces they will move through next. They come upon a drop below which lies a second courtyard that recalls the first. This edge causes a change in direction and they are taken through the interior of the space and past an opening in a wall that reveals a third courtyard, an experience that reiterates previous windows and courtyards. They walk over a bridge past the second courtyard to a platform from which they can visually revisit the path they just followed.

Figure:
Surkej, India.
(Source: Herdeg,
Formal Structure, 25.)
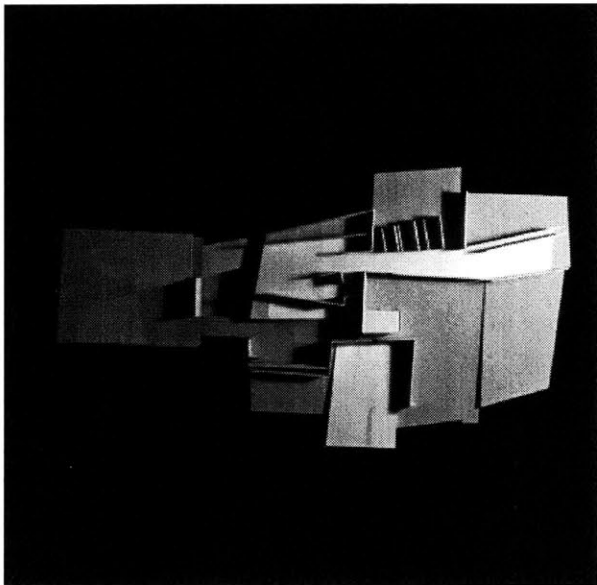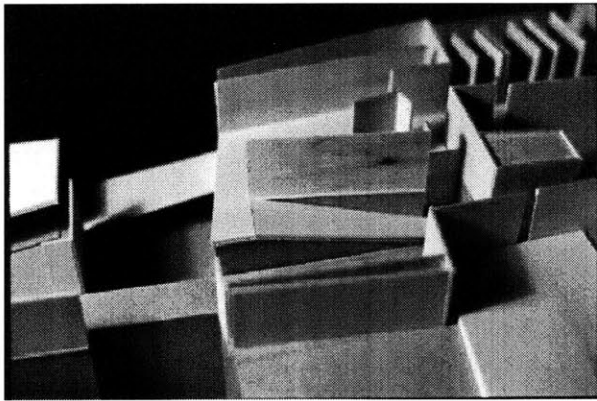
Understanding the method of analogy means looking at the formal and relational languages. The two work closely together to convey the meaning of the "architecture" and articulate the experience and subtle relationships of a work of architecture. At Surkej, India (Figure), an answer and response relationship is set up which generates spatial and experiential complexity. Inverse relationships set up associations without falling into mere mimicry: smaller elements refer to the main architectural elements. This scale relationship is recalled in further inverse expressions. The architecture and its formal construction creates a network of relationships and complexity of associations. In being referential – but not mimicking – the building uses its own architectural artifacts as analogous components for its entire construction.
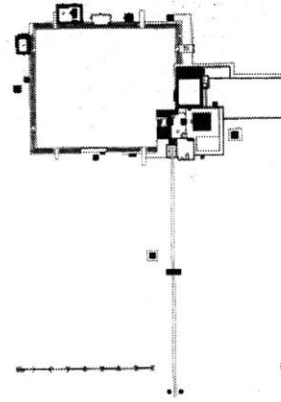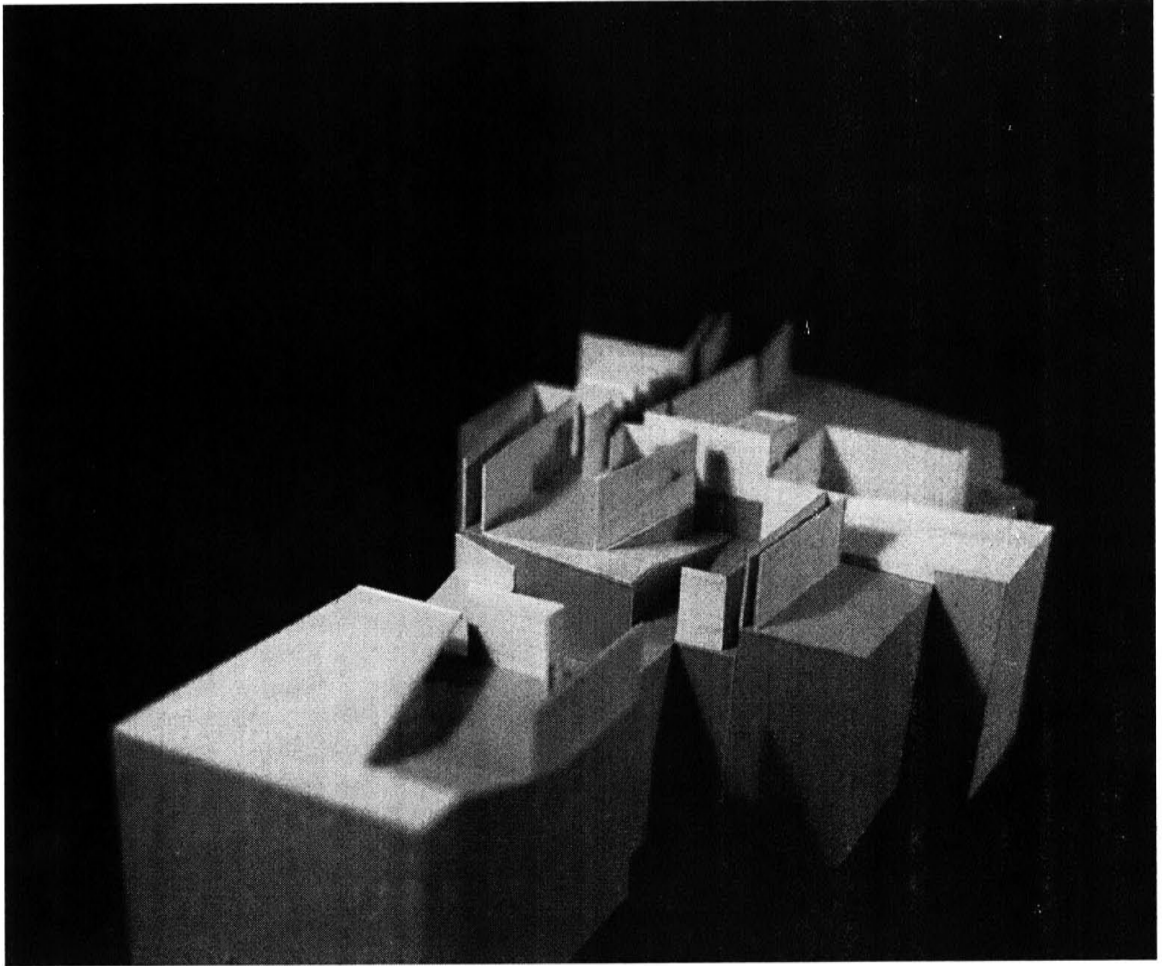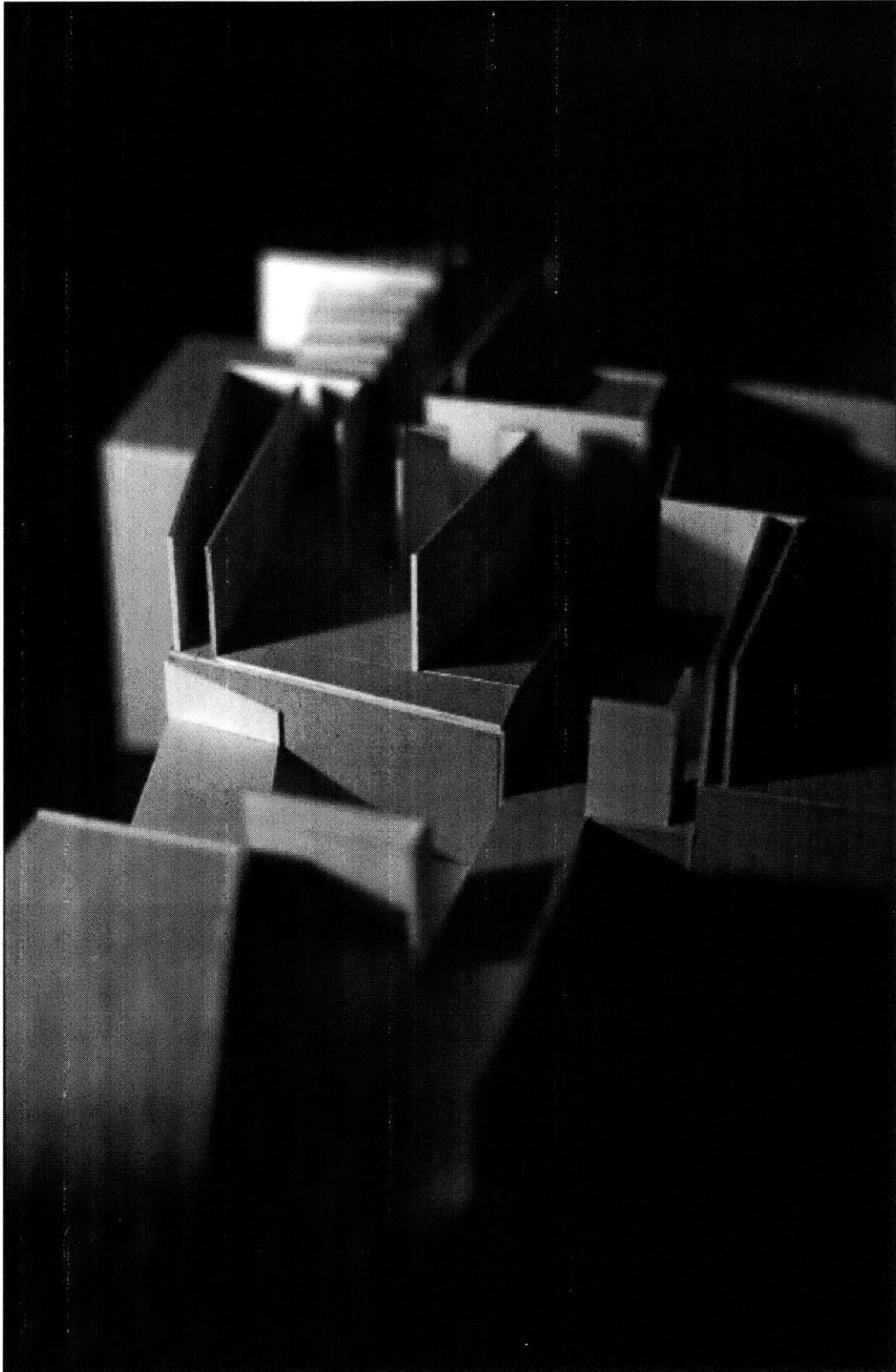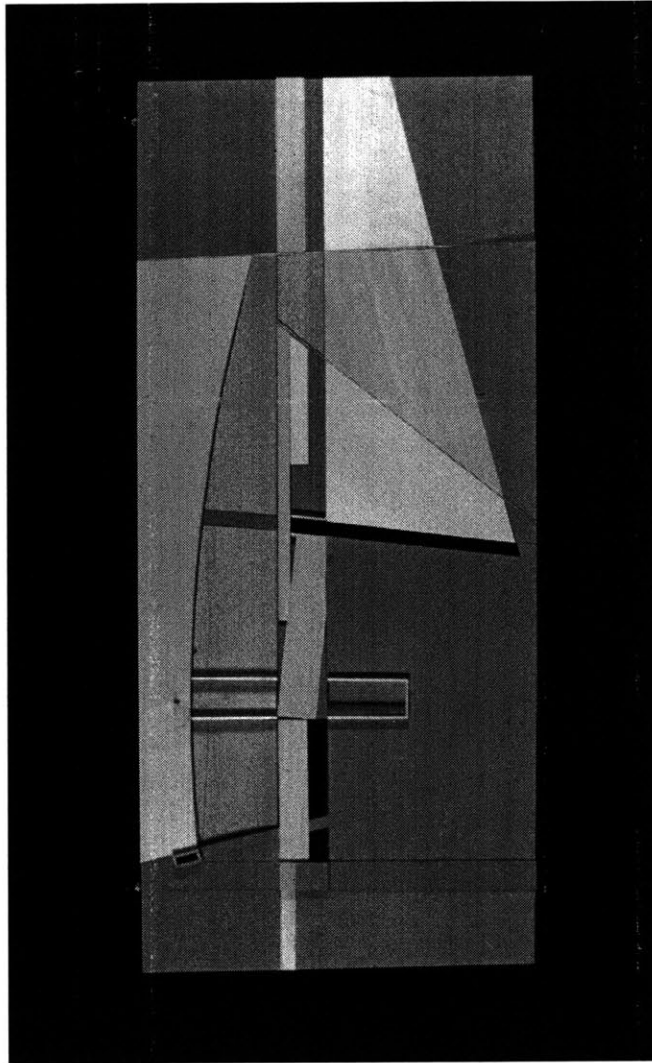
In the building of models, I focused on the investigation of the field rather than the figure or the context. It is an approach that starts at the organization and internal circulation, meaning that the exterior form navigates the interior spaces. Only then does the site itself begin to influence the building as an object. In this way the exterior wall acts as a mediator between the external and the internal. The model shown took the definition of its edges from the path of physical movement and the visual path of the eye.
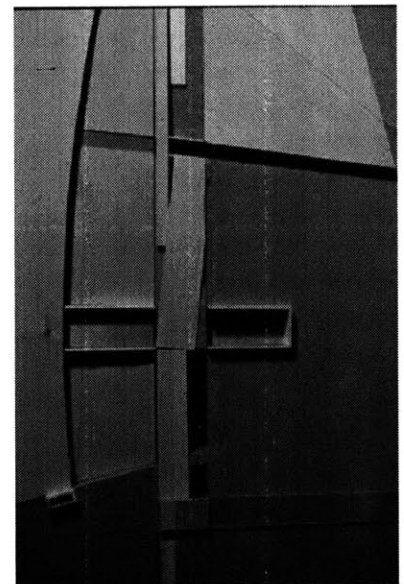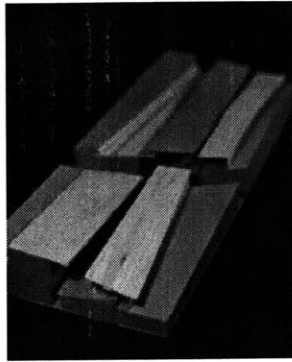
The field is understood in other ways as well. While my early studies organized movement across and through spaces, this study model used the building design itself to create the field. Planimetricly, the lines are an integral part of the spatial experience. To speak of the building as generated by the field is to imply that the architectural elements employed (walls, floor, roof, and structure) articulate the modes of movement and the paths of travel. In plan, paths can slip into each other, in section, levels change to allow for a vertical crossing over. Users are to weave through the spaces, architectural elements echo this behavior.
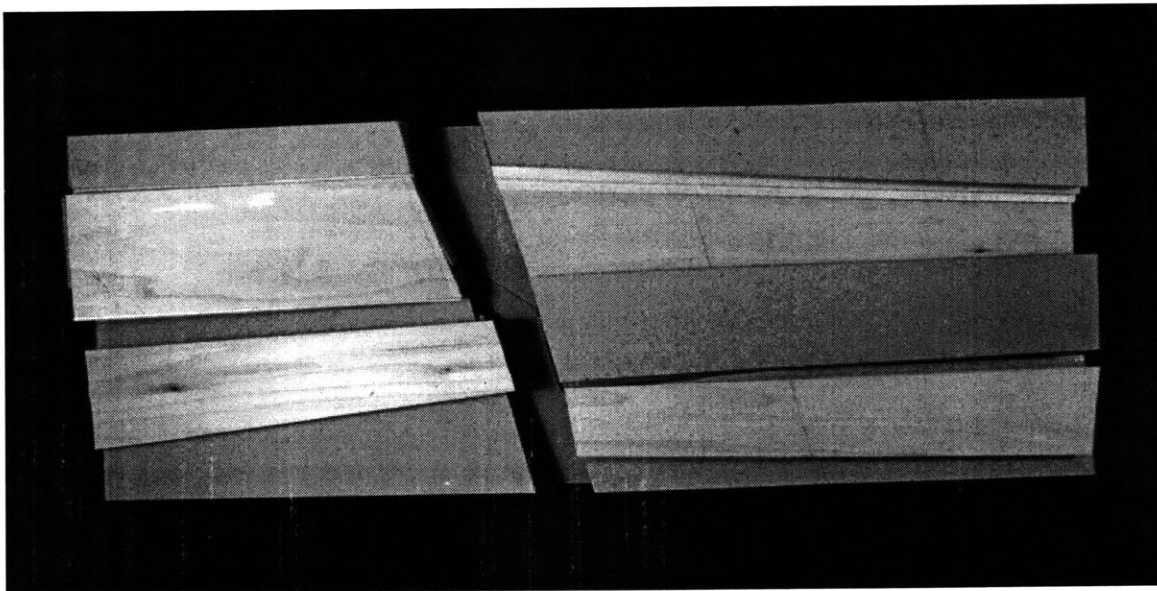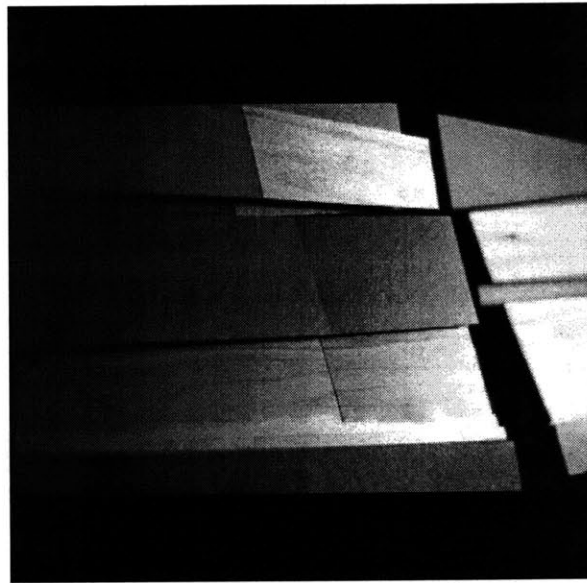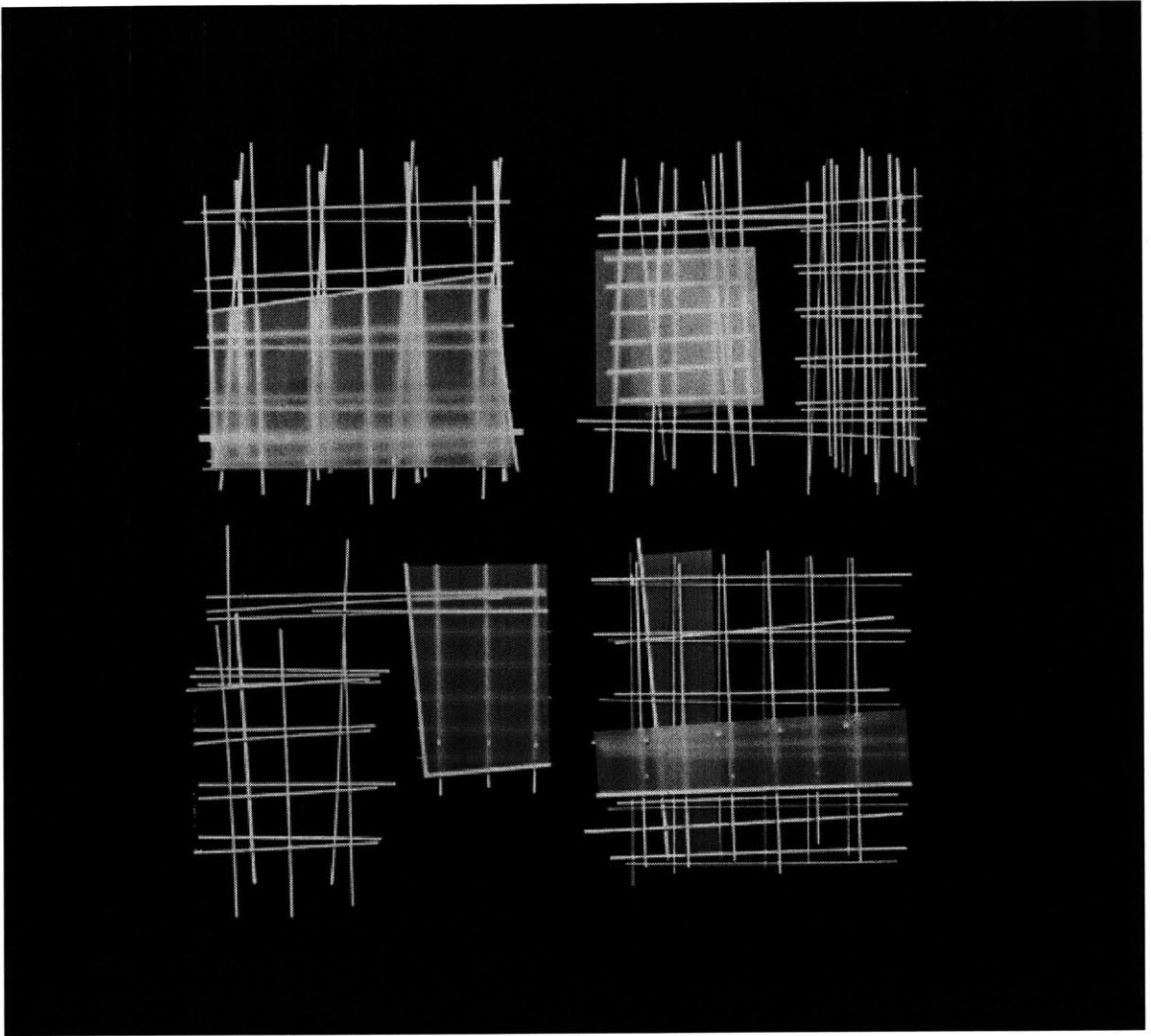
Initial understandings of non-linear narrative and devices, such as fragmentation and slippage, resulted in formal architectural translation.

Further iterations focused on perceptual expression. The drawings that follow convey, through visualization and the gesture of recording, what I want others to see perceptually. Drawing serves as the act of seeing — the conveyance for transferring information from the physical fact of the architecture to the mental perception of the spatial experience.

The drawings render suspect the shape read. The eye oscillates between readings of the positive and the negative space that conveys the symbiotic relationship of space and surface. This affords multiple readings depending on which figure is read. The continuous line of the drawing links all captured spatial experiences. It threads movement through the drawing to emulate the eye's movement through the space.

Perception

Perception is a cluster of interrelated events. A kaleidoscope of potential information is captured and translated into language. These events can be presented in a temporally organized fashion, or one that fragments time sequences and links events through other means (e.g., thematic or mnemonic). To understand perception requires knowledge of the components of that cluster and the ways the components interact.

Following Pages:

Figure 1.   Perception Drawing.
Continuous line drawing of
spatial experience.
Graphite on watercolor paper, 18x45 in.

Figure 2.   Perception Drawing.
Continuous line drawing of spatial
experience and mental perception.
Graphite on watercolor paper, 18x45 in.

Figure 3.   Perception Drawing.
Continuous line drawing of the space as
experienced by the three different users:
Composers, Musicians, and Public.
Graphite on watercolor paper, 18x45 in.

Figure 4.   Perception Drawing.
Continuous line drawing of
two composers travelling from room
to performance hall simultaneously.
Graphite on watercolor paper, 18x45 in.

Figure 1:
Perception Drawing
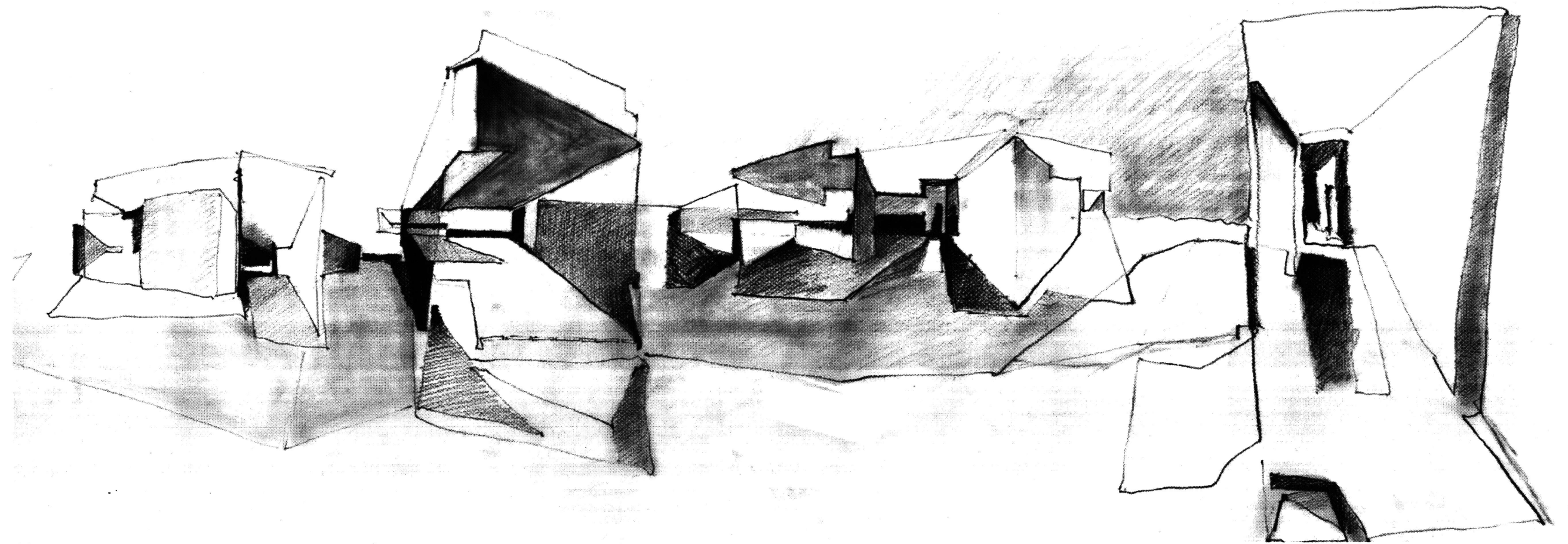
Figure 2:
Perception Drawing
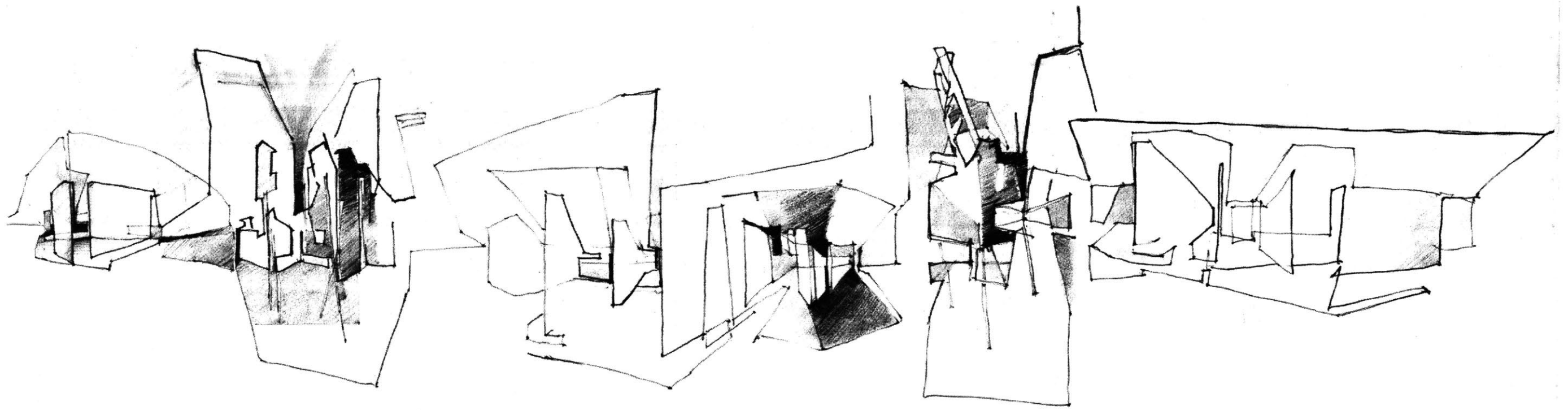
Figure 3:
Perception Drawing
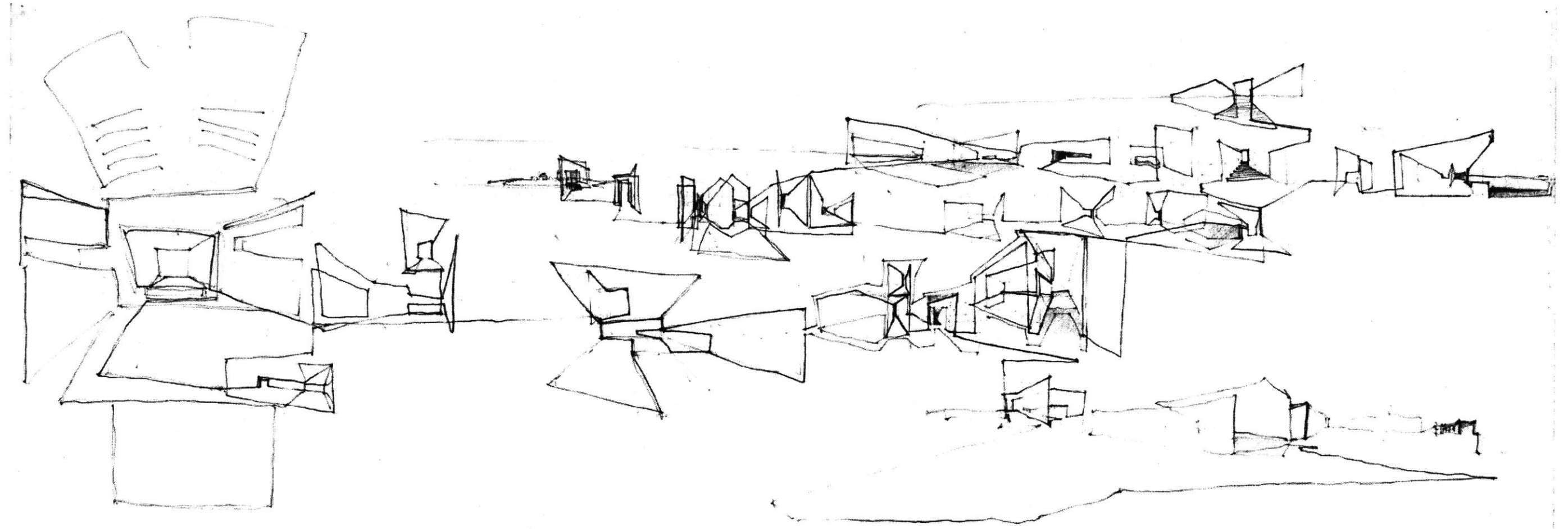
Figure 4:
Perception Drawing
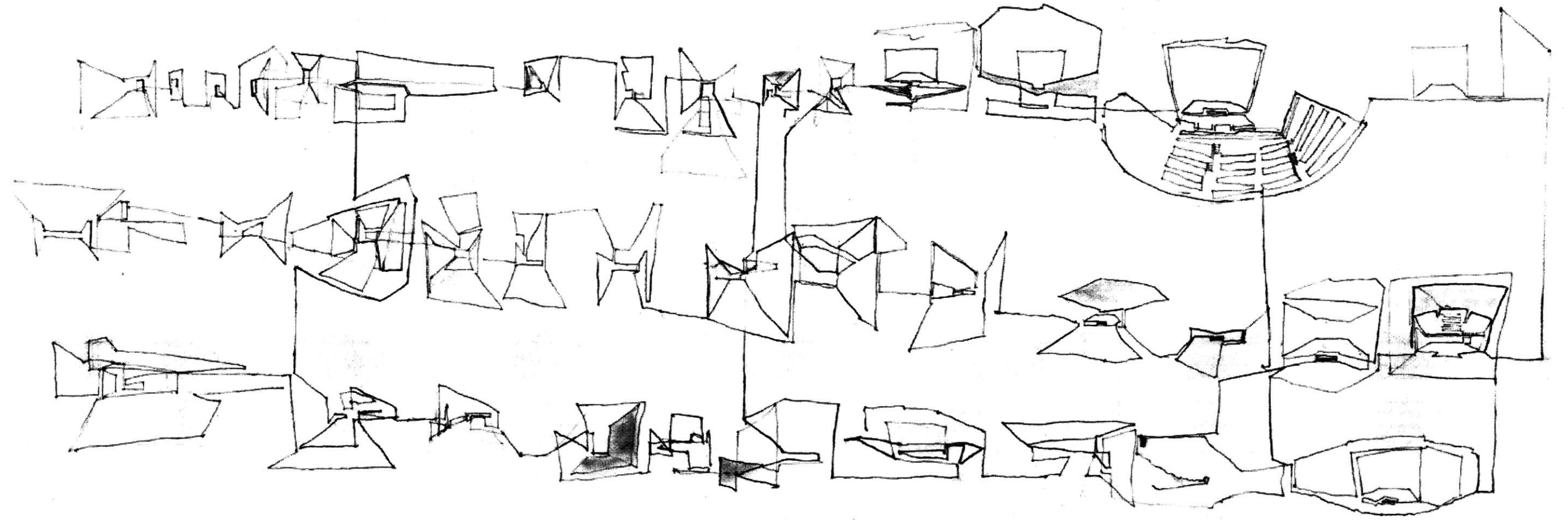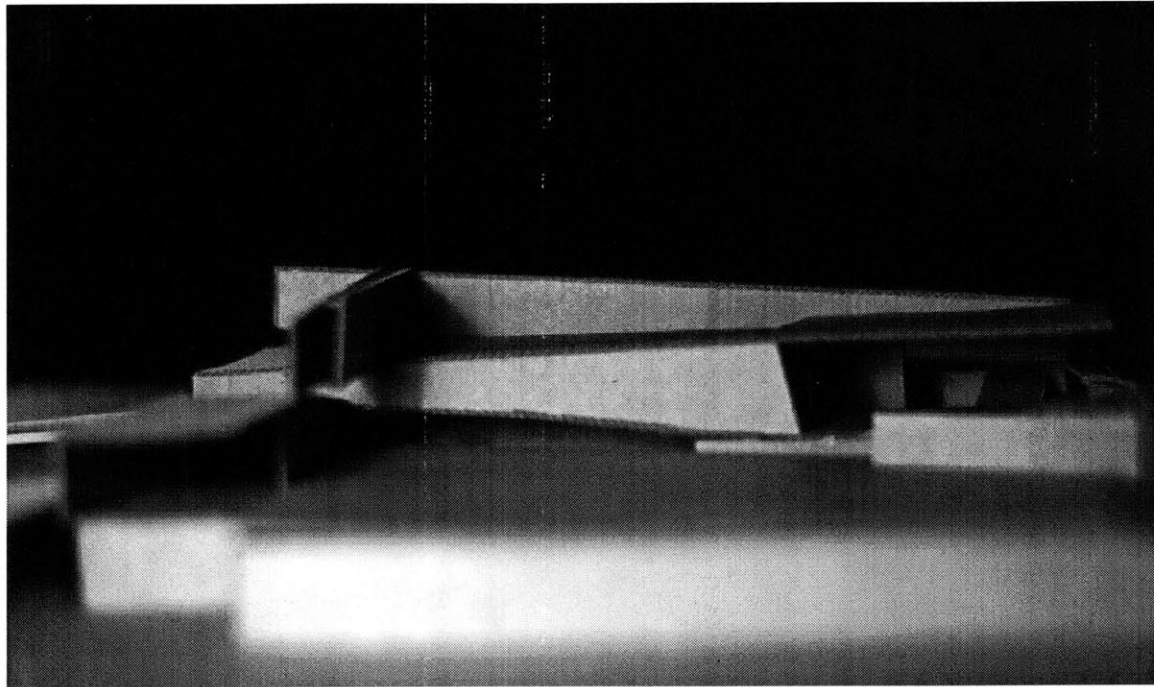
Improv Model

If the previous models were 'mediation models' — models that translated ideas of narrative into architecture — then the model that solidified the programmatic approach and hinted at a design vocabulary was the "improv model." (The "improv model" was one of a series of improvisational models. These were executed rapidly to test new ideas gained from the mediation models and typically used the actual program to give scale.)

Three users: the public, the musicians, and the composers, weave through a space along independently articulated passages as they move towards a performance hall. At the entry where the three paths cross, an architectural opening up of the surfaces connects the three users. In this instance, there is an awareness shared by people moving in close proximity. Prior to entering the hall, the three groups overlap again. The public lobby opens up to look into the backstage area and the composer's passageway above opens to below, filtering all sounds of the lobby and backstage into their space. In this way, all three groups are made aware of each other's presence as equally significant contributors to the experience of entering the hall.
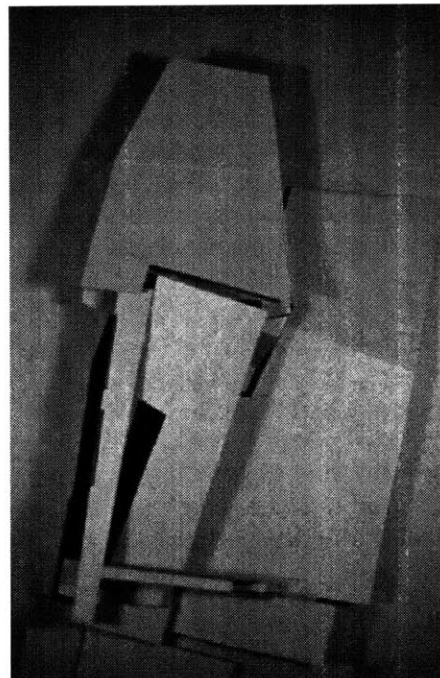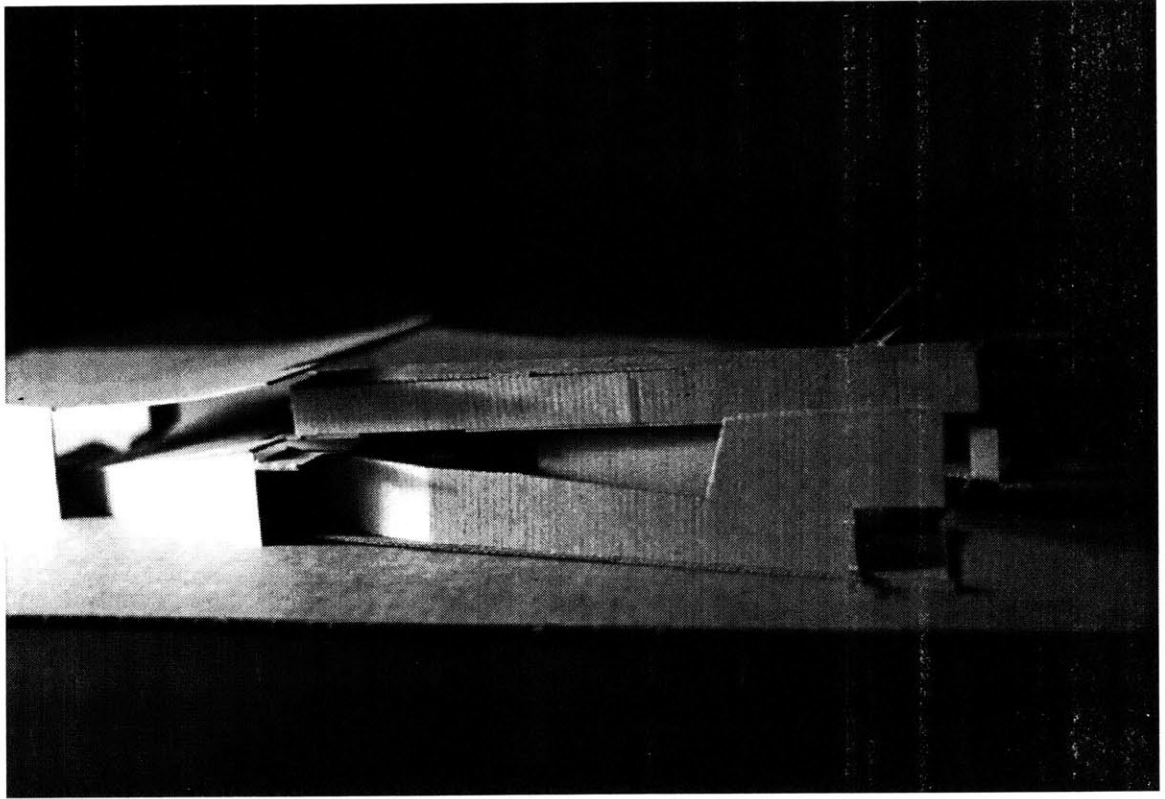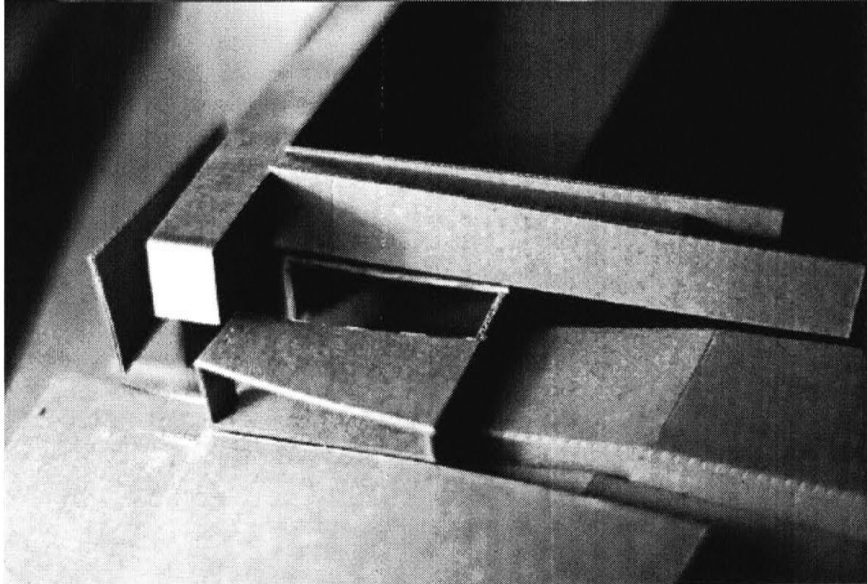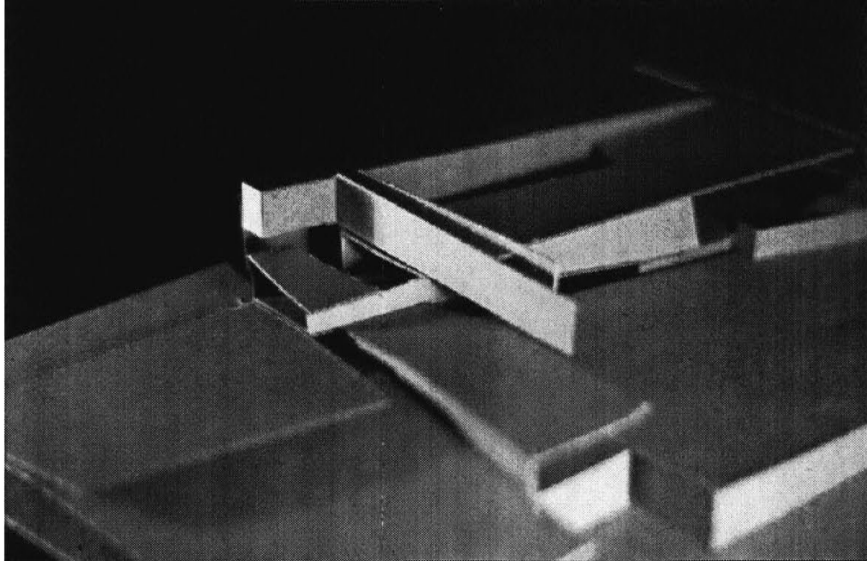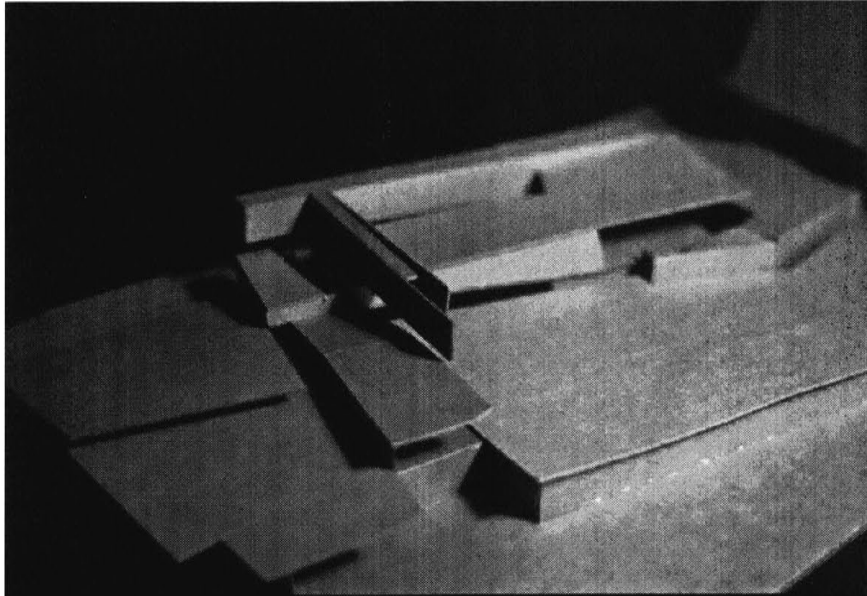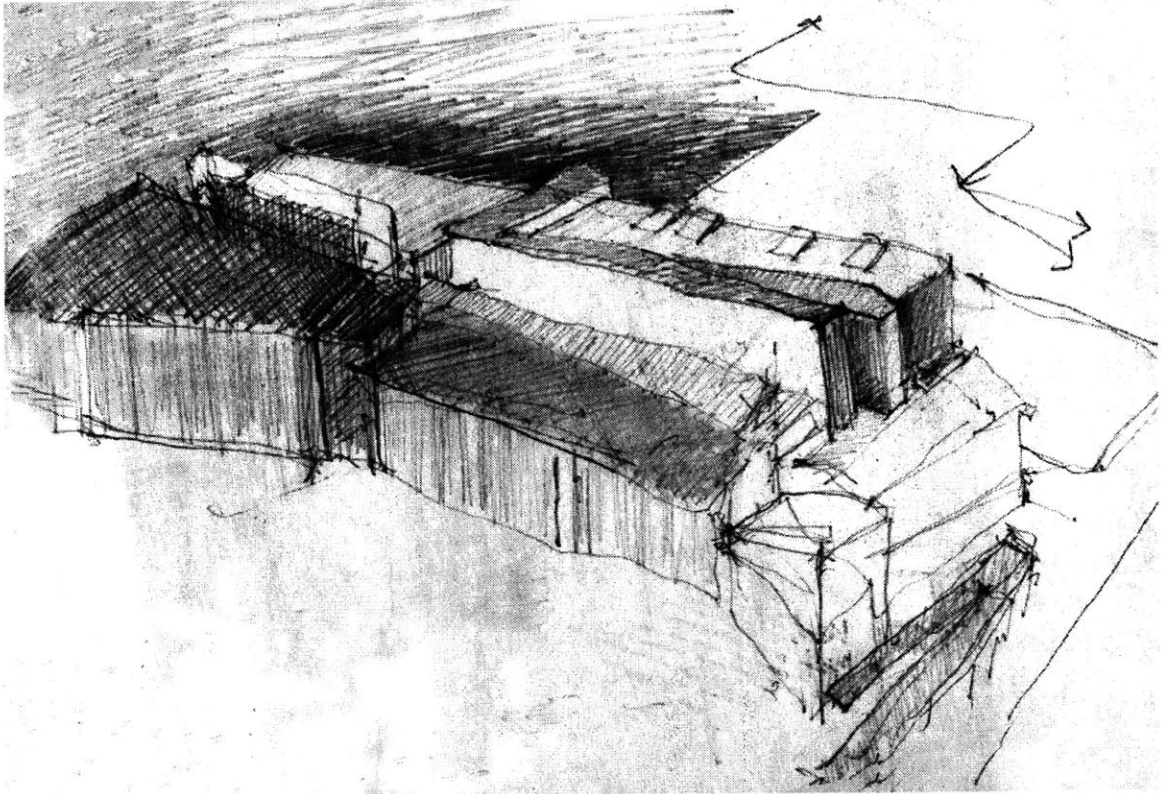
Summary Before Design

There are numerous elements involved in translating the non-linear as a narrative construct into the non-linear as an architectural construct. In this process I intend to tease apart the components that relate to architecture and define the nature of that relationship. At one level, there is a translation of forms. This has entailed defining tools of narrative and using these tools as space generators. Selected devices of gap, slippage, fragment, simultaneity, and overlap translate through interpretation but exist outside the experiential until space and program are considered. Once I introduce space and program, the experiential enters consideration because of movement.

Initially, I used the investigation and modeling of the non-linear experience metaphorically. Introducing movement and space to the process of translation gives the formal terminology distance and time, both of which are fundamental components of experience. I translated narrative into architecture, moving from metaphor to analogy by drawing an expression of the experience. Abstract concepts of the non-linear are transposed into ideas that are inherent to the experience of architecture. The experience of the space is expressed through a formulation of the perceptual understanding of the building. With these ideas, I had the tools of articulation needed to move to the design of the building on a specific site.

III. Gusto. (Final building.) (3102 w)
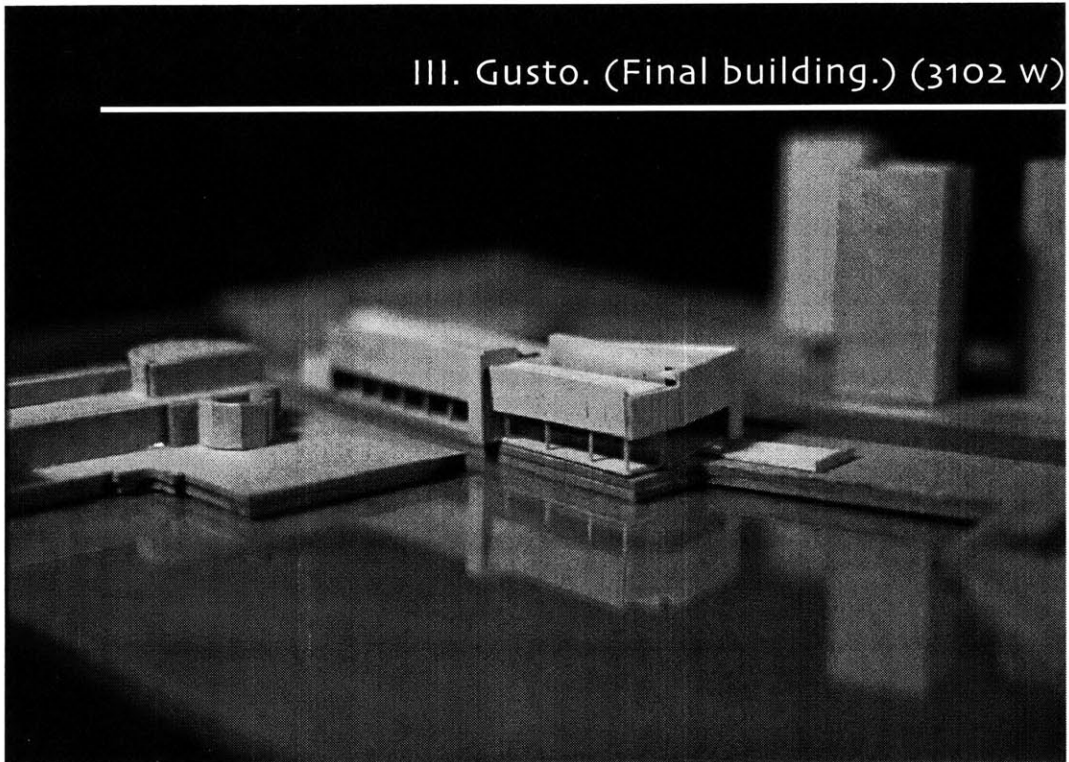
Four Sites

Boston has a rich music culture generated by the numerous academic and performance institutions in the city. Furthermore, as a traditional college/ university town, Boston harbors a unique energy and learning eagerness that provide the kind of environment conducive to collaborative work and idea sharing. The idea of the "improv model" was initially taken to four sites located throughout Boston: the empty lot next to the Children's Museum on the Four-Point Channel; the site next to the Ice Rink in the North End; the parking lot adjacent to the Museum of Science; and a site within the land claimed by the Artery Project next to the Sumner Tunnel.

Children's Museum
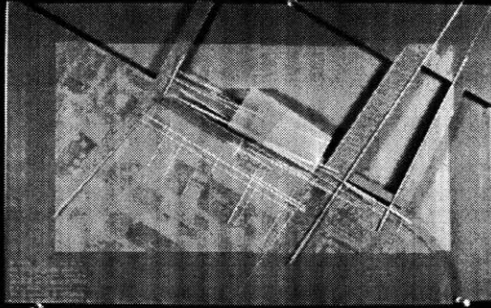
North End Ice Rink
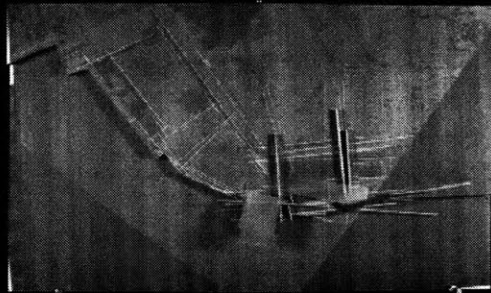
Museum of Science
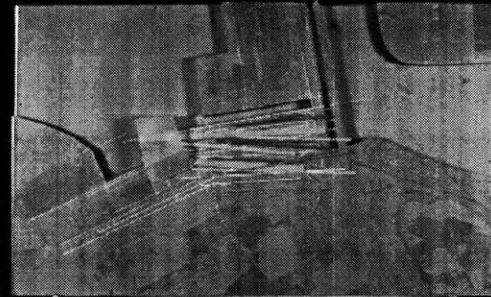
Artery
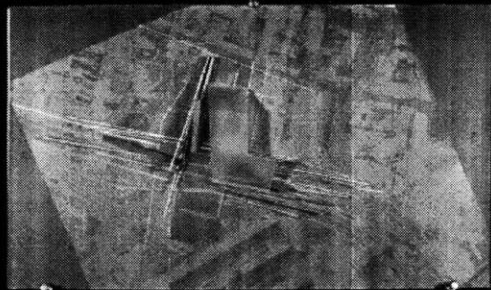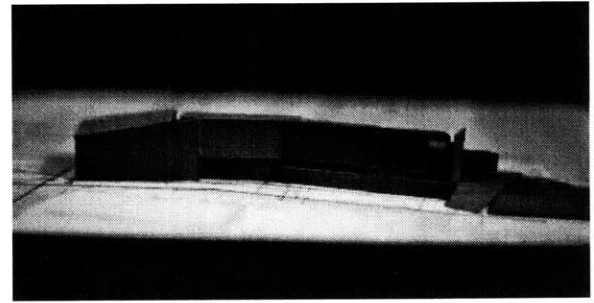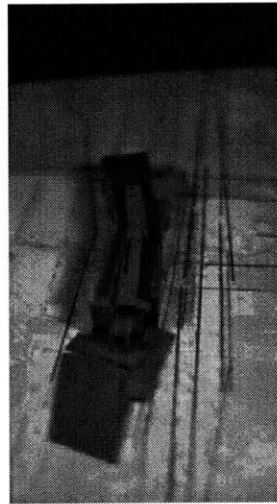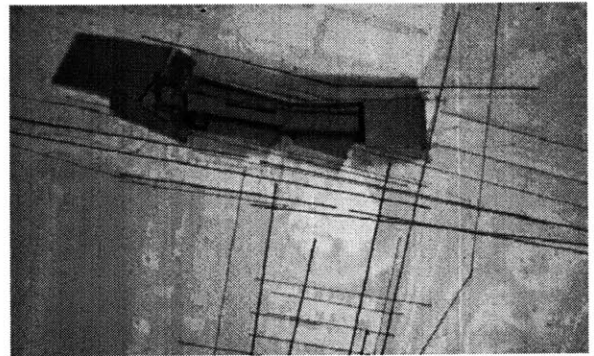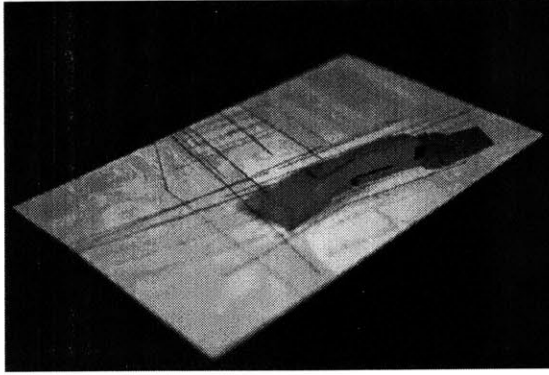
Artery Site

Each execution of a model within a different set of site conditions gave rise to different strategies for organizing the circulation and the program. Idea-based design meant that the site provided constraints, but these were not to become the primary determinant for the building organization or form. The idea of the thesis generated the main design decisions; the context and directional forces of the site acted more as guides that focused the orientation and articulation of the project. Working with a site promoted a specificity about how the theoretical component of the thesis would simultaneously generate and be expressed in the building. The specificity of the site gave scale to still loosely defined spaces.
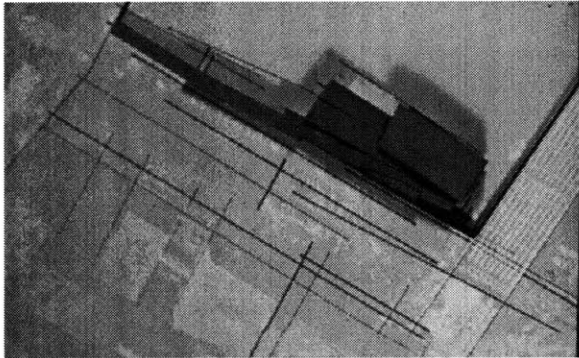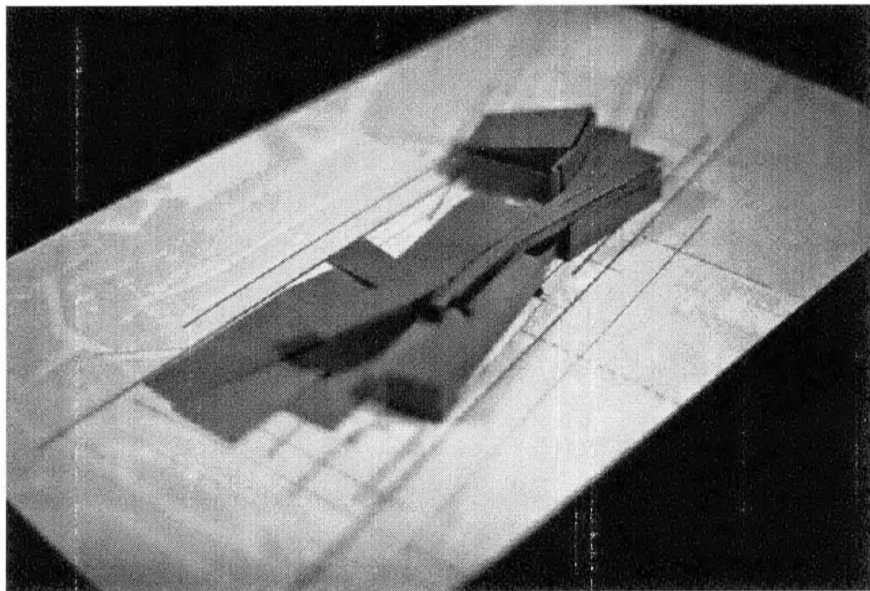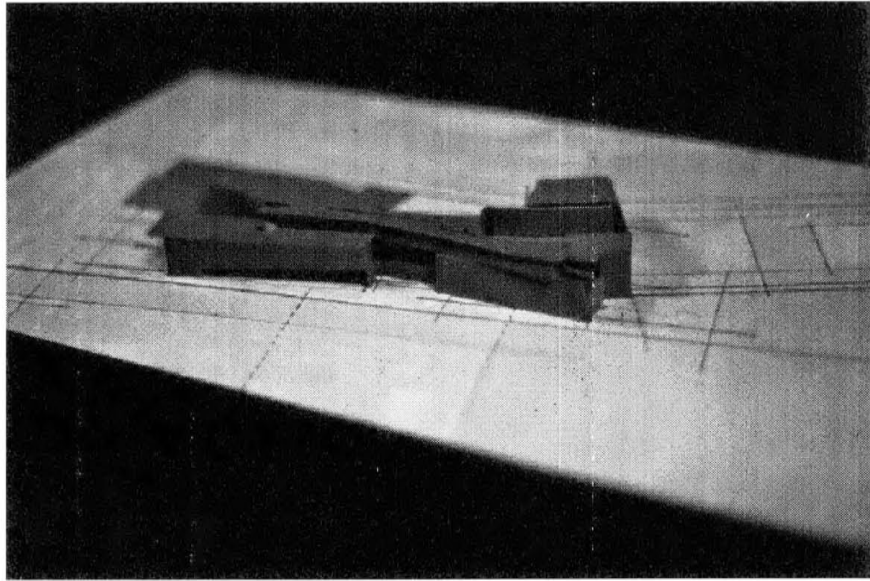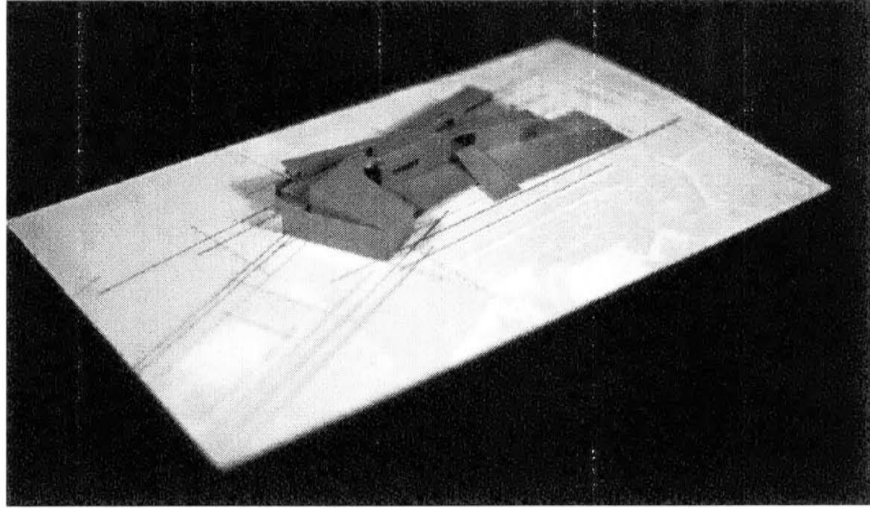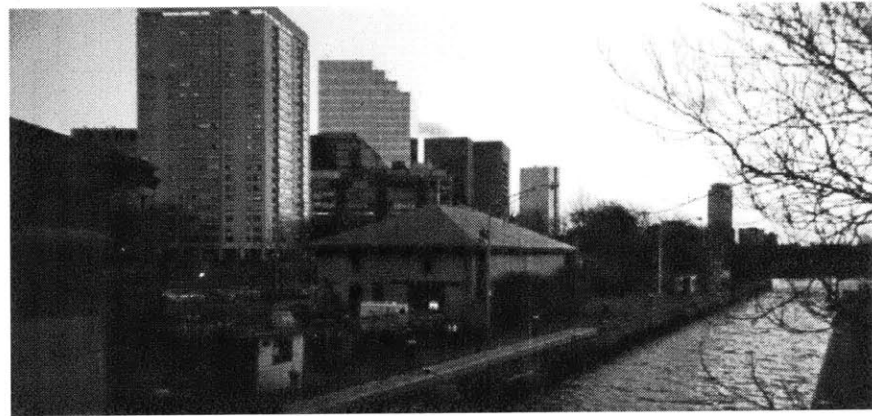
Children's Museum Site
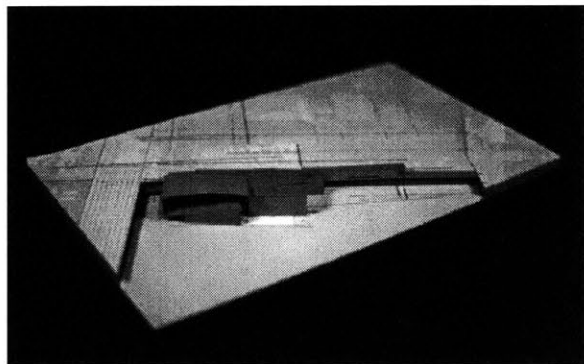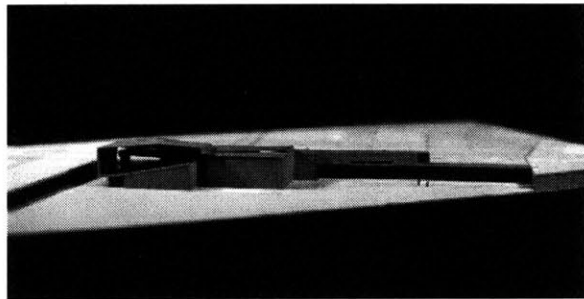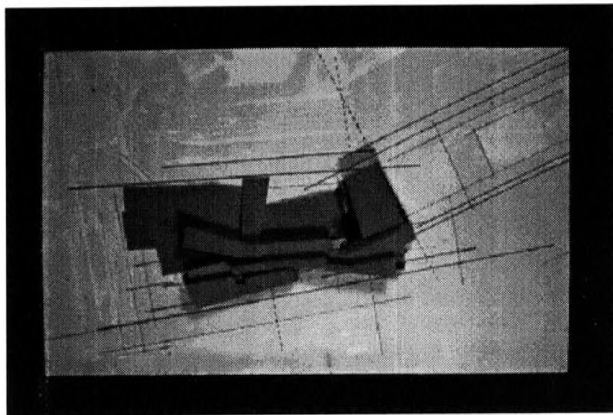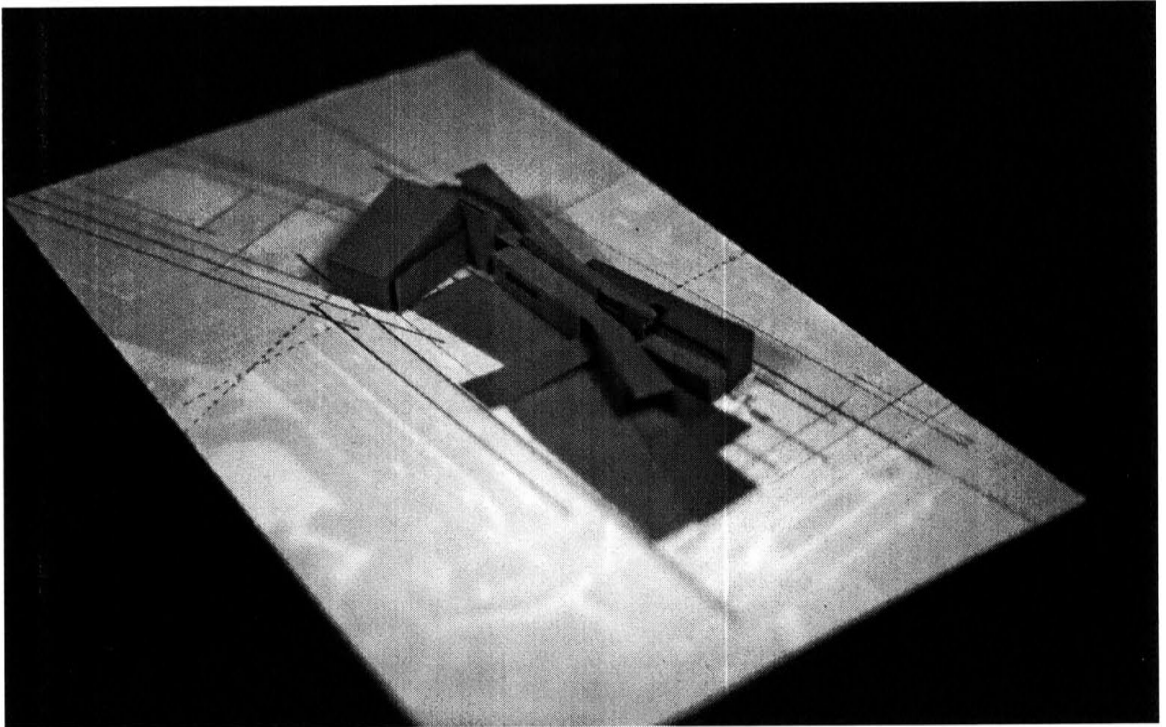
Museum of Science Site
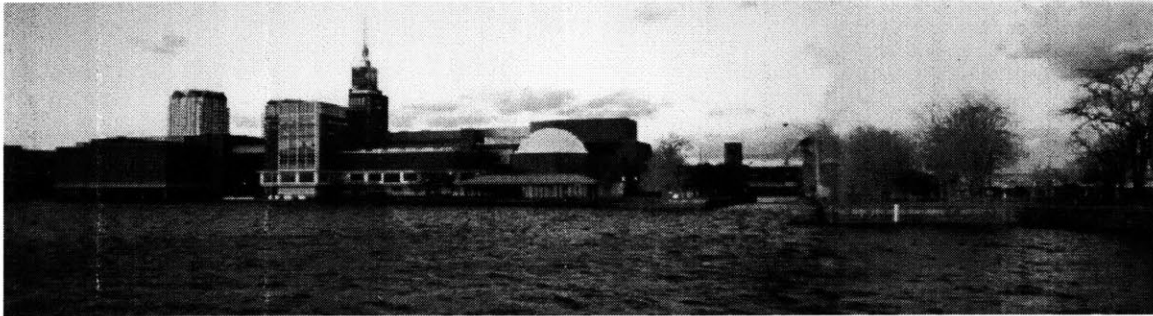
Storrow Drive view to north

Canal edge facing south

Existing site condition facing southwest

View of Museum of Science
and site with canal.
Site on the right side of the
canal.

OneSite

I selected the site adjacent to the Museum of Science at the confluence of the Charles River Dam, Storrow Drive, and the beginning of the Charles River Park to further develop the project. The geometry of the site complemented the organization of the building program of the "improv model." The site's rectangular form, which contained both busy urban and built natural landscapes, lent itself to a building with linear organization. Circulation could occur along the entire length of the building and therefore allow people to traverse the entire site. Movement across the site was important because it forced an awareness of the diametric nature of the site's edges. This dichotomy challenged a building that responded to the conditions of both edges in a coherent expression.

USGS aerial map of Boston, Museum of Science site.

Figure:
Diagrams of possible site organization strategies. The placement of the performance hall determines the primary circulation routes in the building. Of all three, Version A engaged the site more successfully.
*Originally 1:200 m*
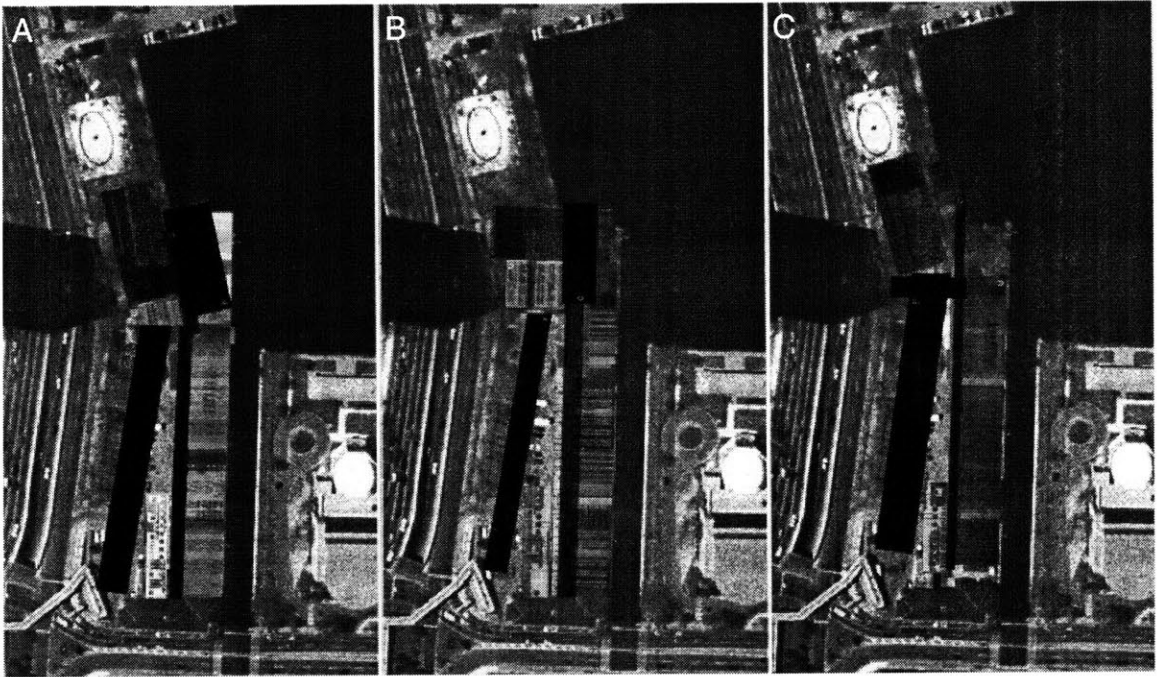
Generally, the organization of the building called for all users to enter from the north at the urban edge (diagrams are oriented with south at the top). Conceptually, as people traverse the entire building, they move from the city to the natural. The public enters and moves along the length of the building from a condition of urbanity to one of water and landscaped parks. The composers and the musicians are led immediately to the natural edge of the site. They move across the short width of the building to the water's edge where practice rooms, workshops, and residential units are situated. Their experience of the building occurs through active habitation of the spaces. By moving to the practice areas or from the housing to the dining area, they move in parallel with the natural edge of the site. In this way, close proximity is maintained to the water of the Charles River and distance is kept from the aural and visual noise of Storrow Drive.

Figure:
SIte Model. Roof Elevation.
South oriented upwards.
*Originally 1:1000 m*
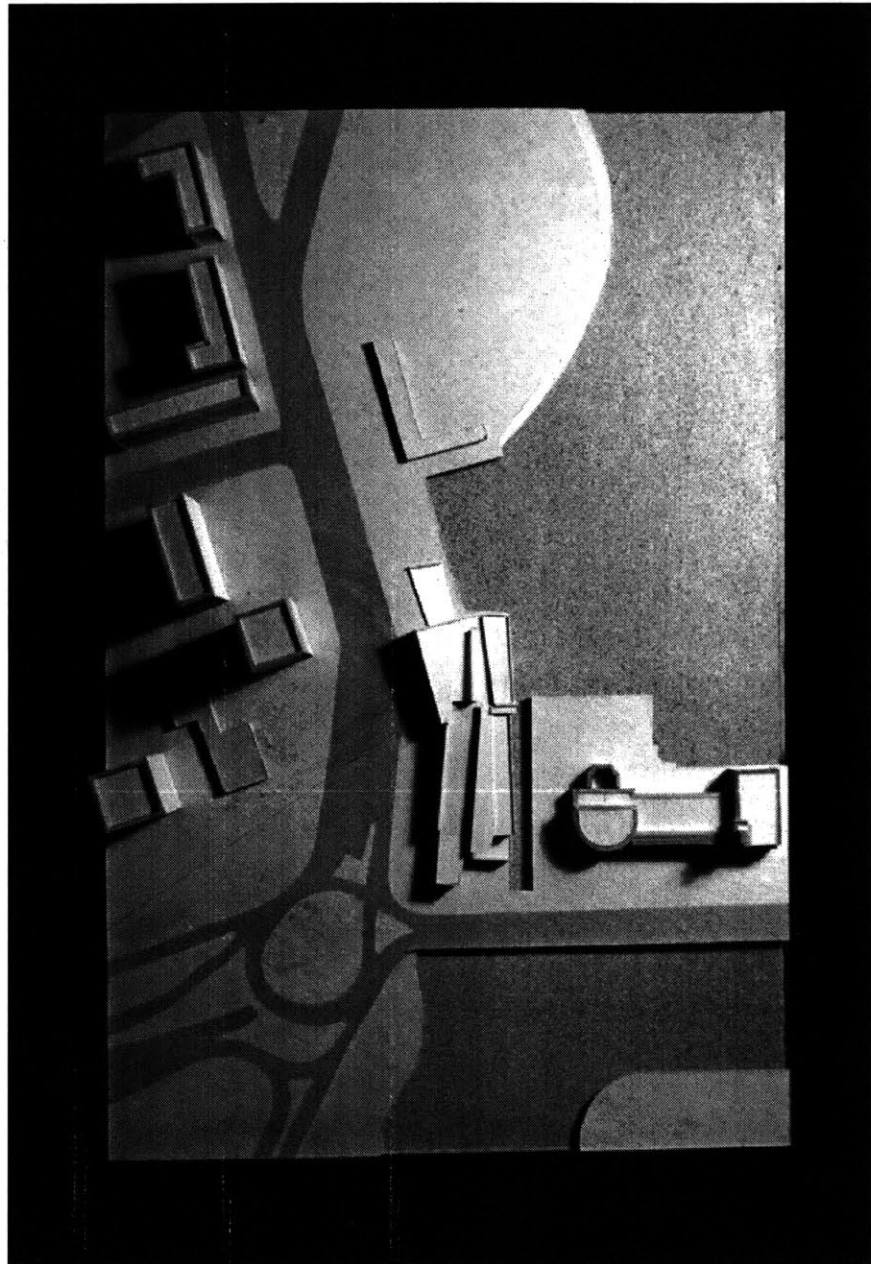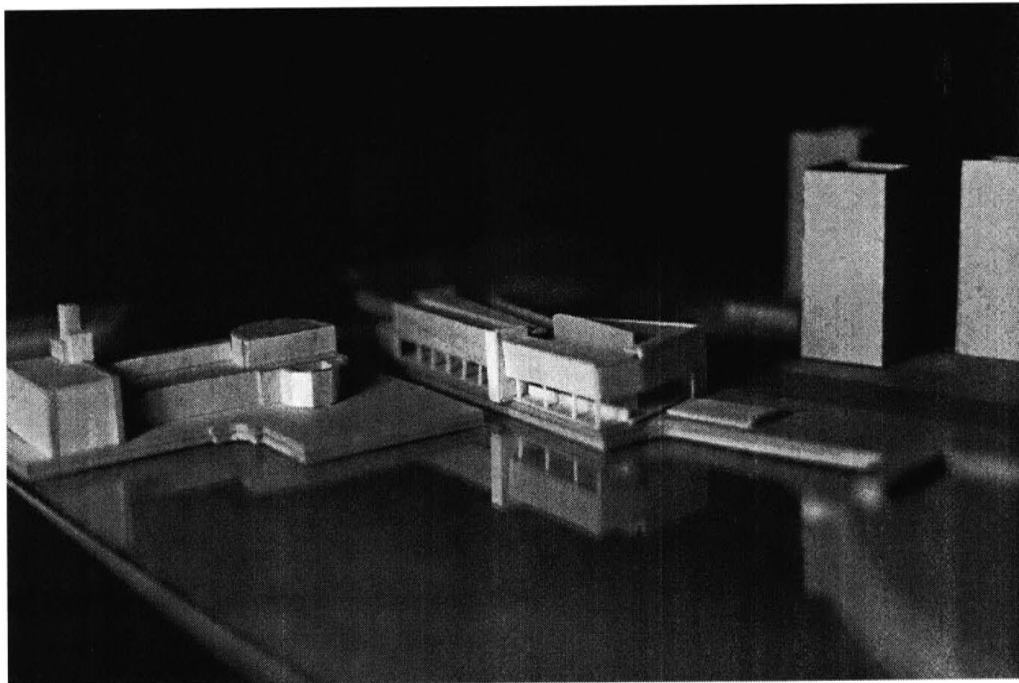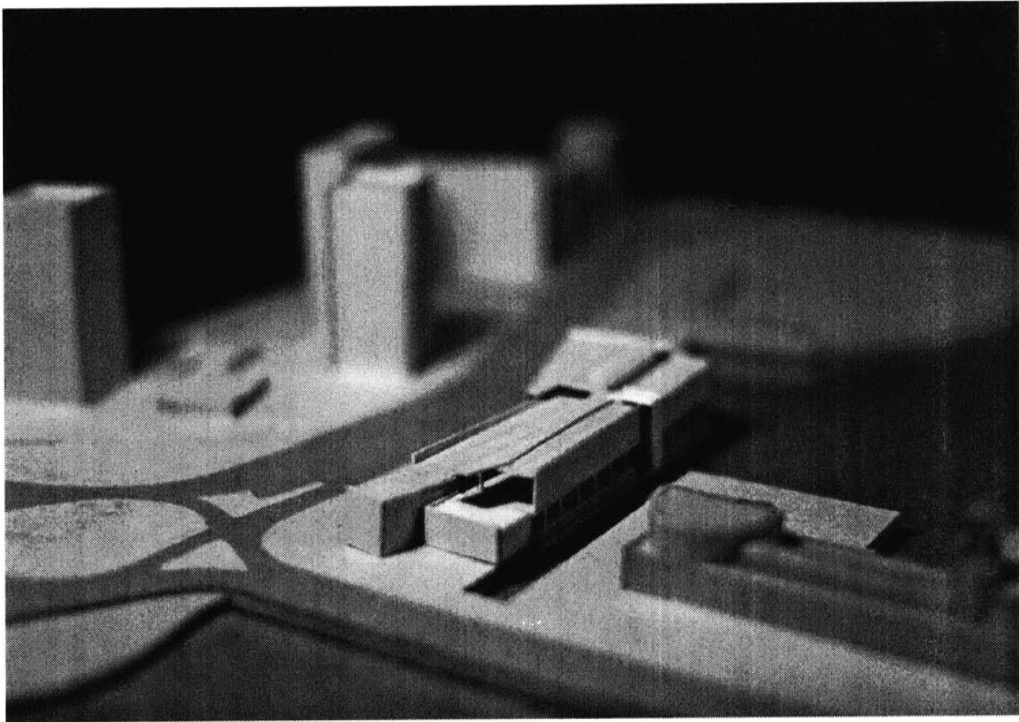
Composing the Building

The *Center for Contemporary Composition* is a building where composers from different backgrounds and in different stages of their career development come together for sessions ranging one week to six months in duration. Embedded within one building are the facilities necessary for composing music, performing, and living. The program developed as a hybrid based on music institutions, concert halls, summer school programs, and think-tank retreats. The Center borrows selectively from other sources and assembles them within one structure.

The Program

| Composers	m²
Composing and casual meeting Areas	
(Interior, Exterior, Courtyards)	100
Composing Rooms (5)	20 ea
Musicians	
Individual Practice Rooms (5)	20 ea
Quartet Practice Rooms (2)	40 ea
Recital/Lecture space	80
Recording Studio	80
Residential	
Maisonette Doubles (4)	35 ea
Single Studios (6)	15 ea
Public	
Entry	50
Cloak/Tickets	20/15
Lobby	160
Overlap Areas	
Auditorium (300)	250
Recital/Lecture Hall (100)	100
Dining Area (Kitchen)	80 (40)
Green Room	50
Composer's Gallery	160
Circulation	
Composers	80
Musicians	60
Public	90
Administration	
Entry	20
Director	25
Assistants (3)	20 ea
Copy/WC	15/20
Support	
Back Stage	80
Mechanical/Technical	90
Instrument Storage	80
Service Entry	
Toilets	20 ea
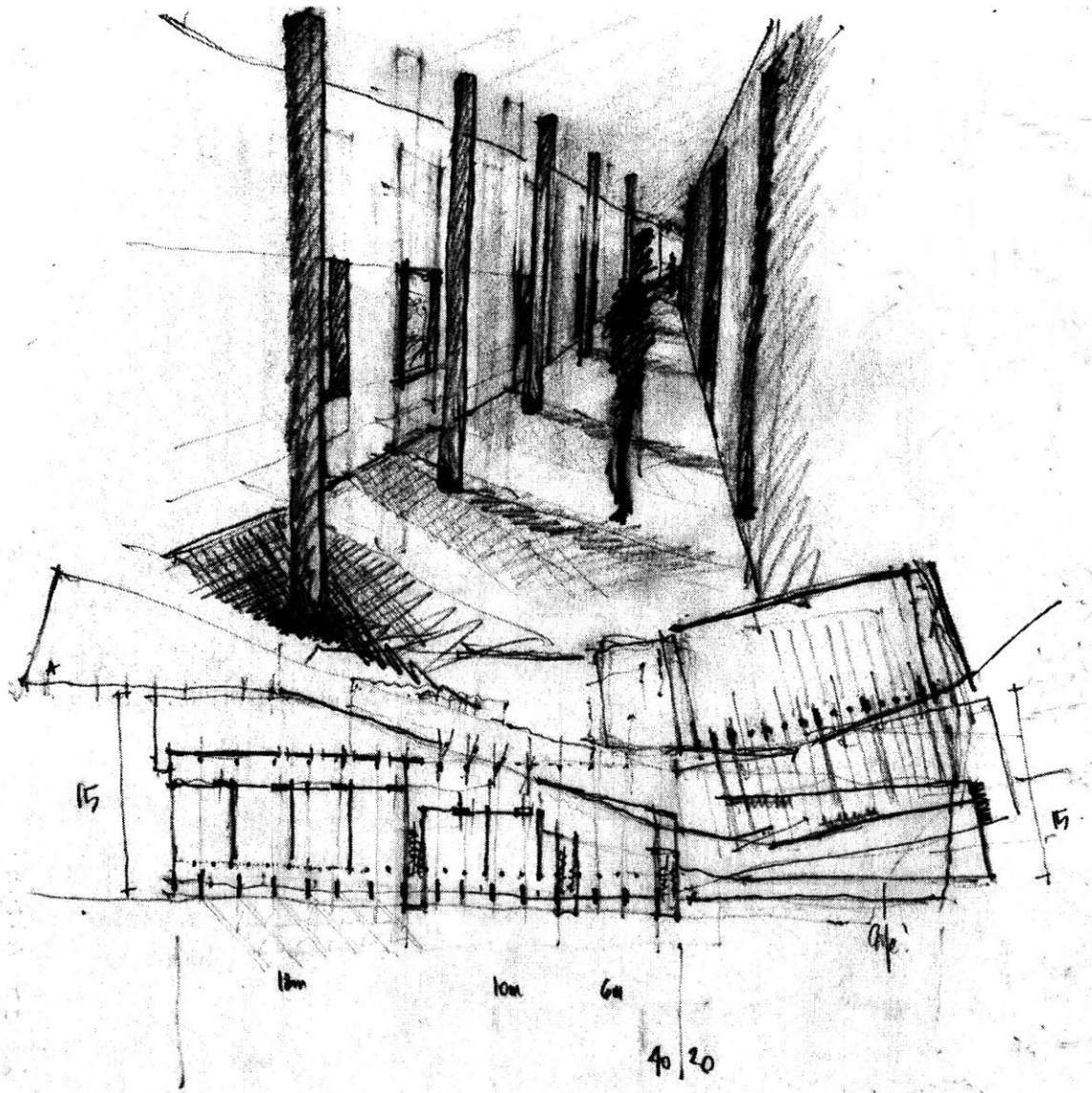
Final Composition
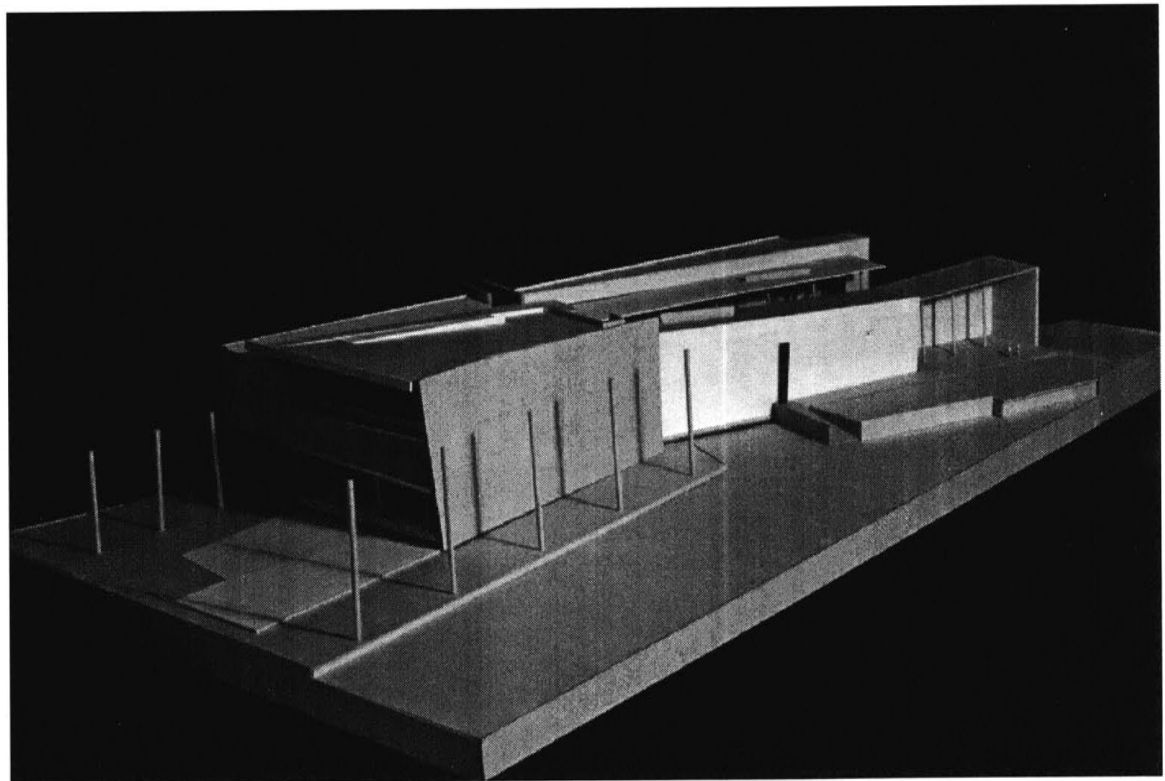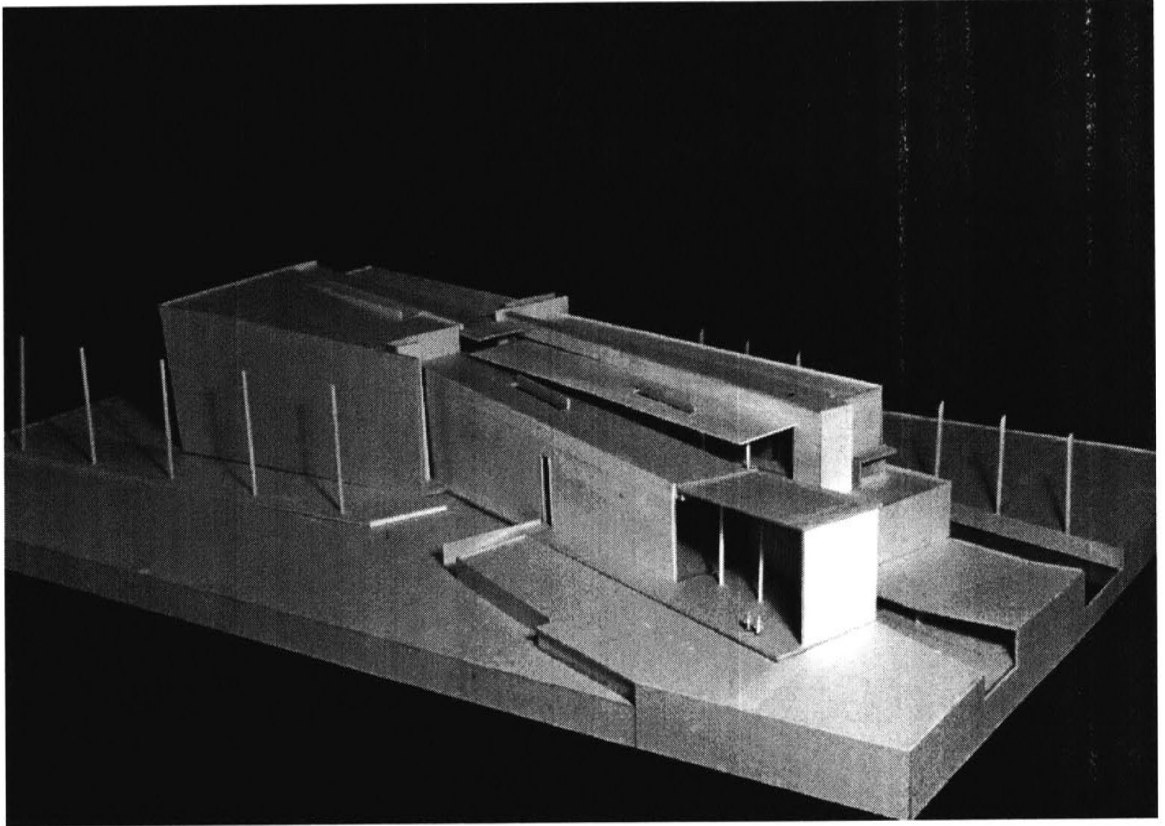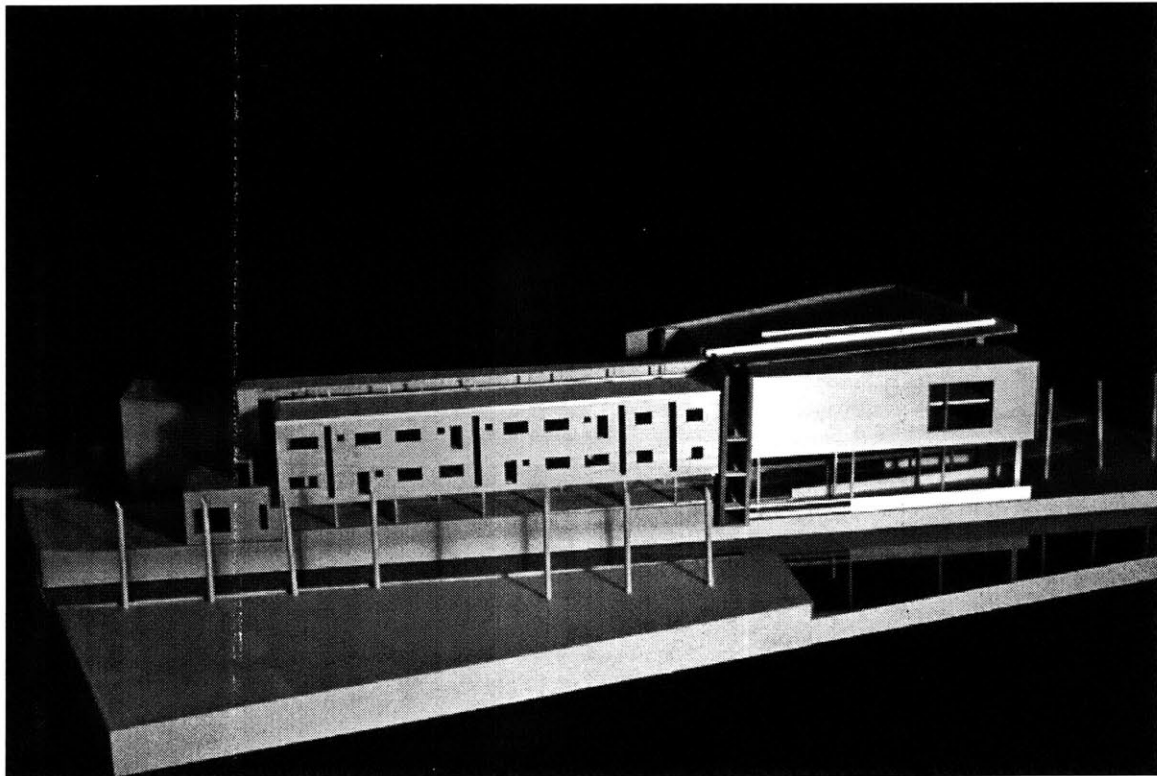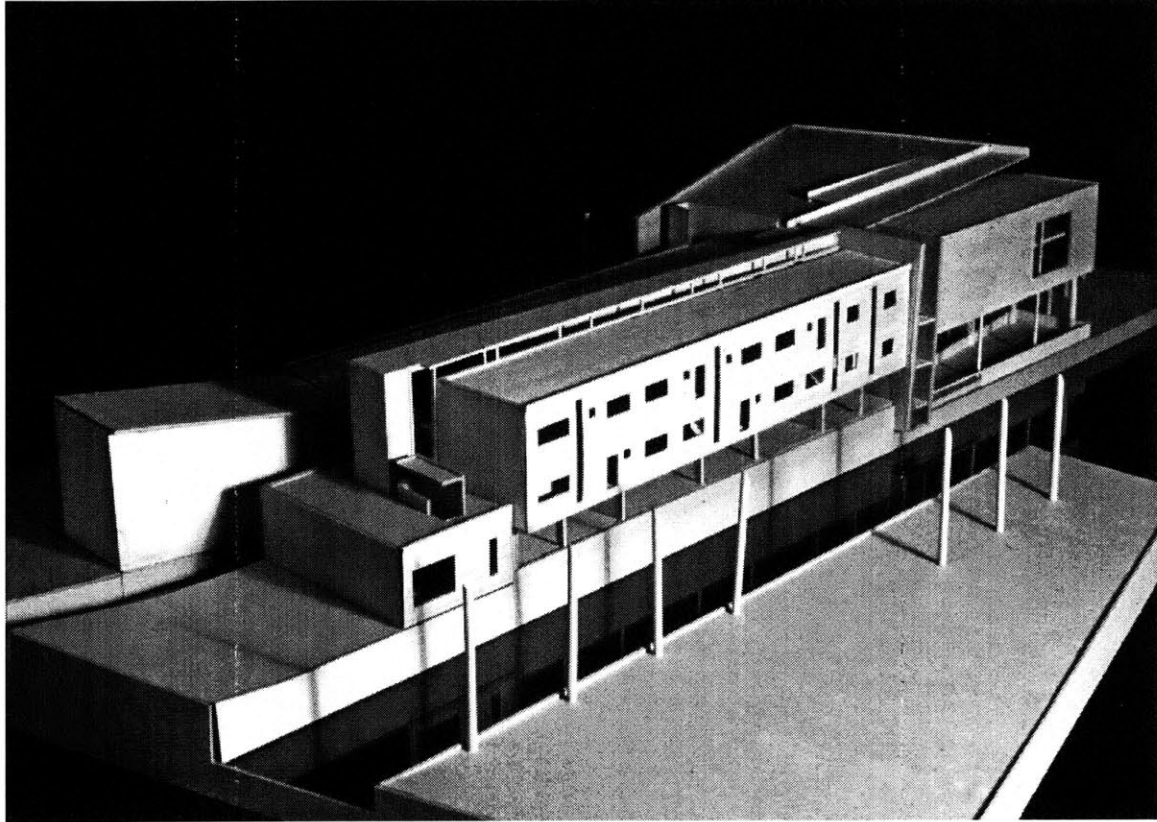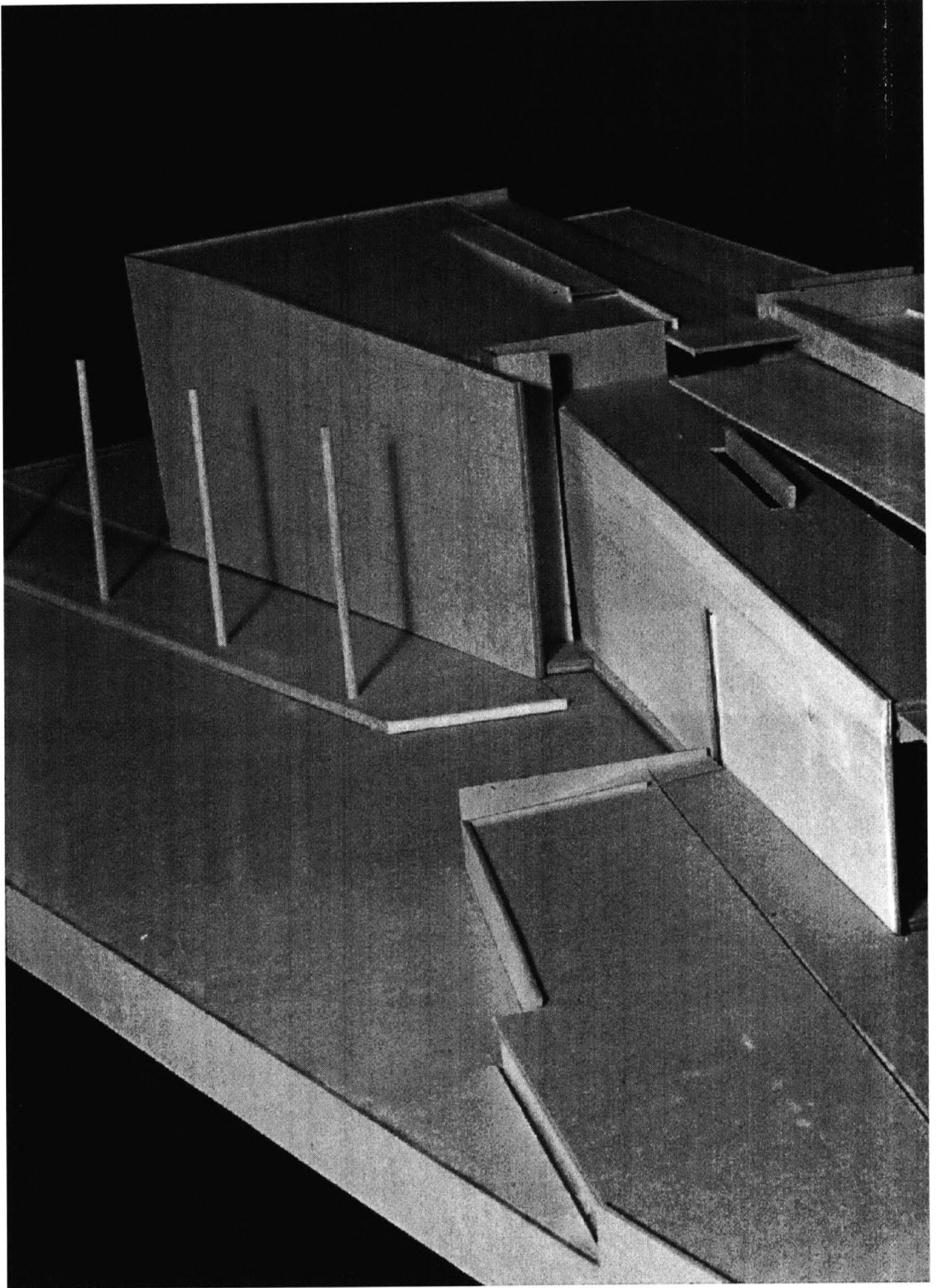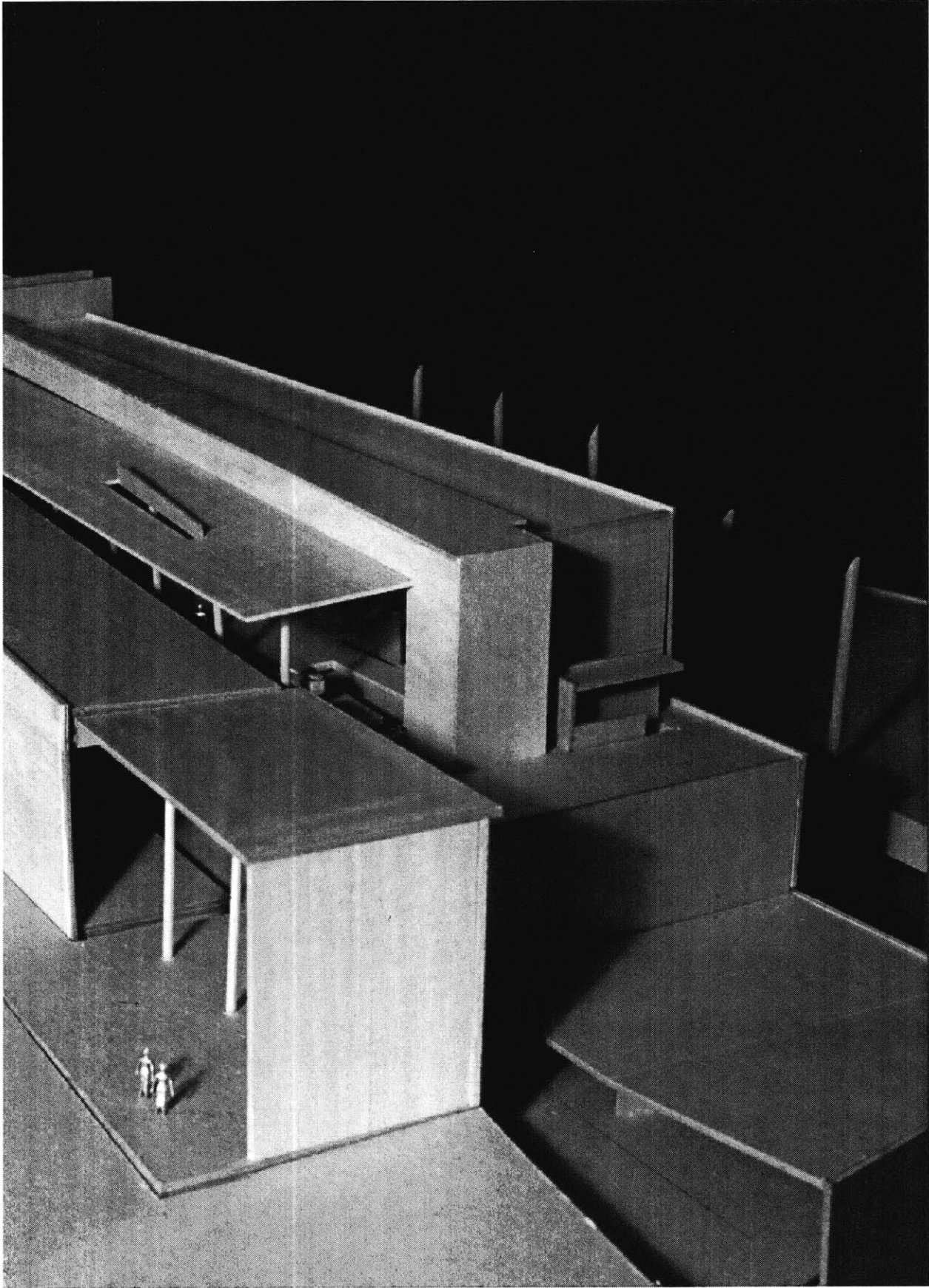
Figure 1:
Lower Level Plan
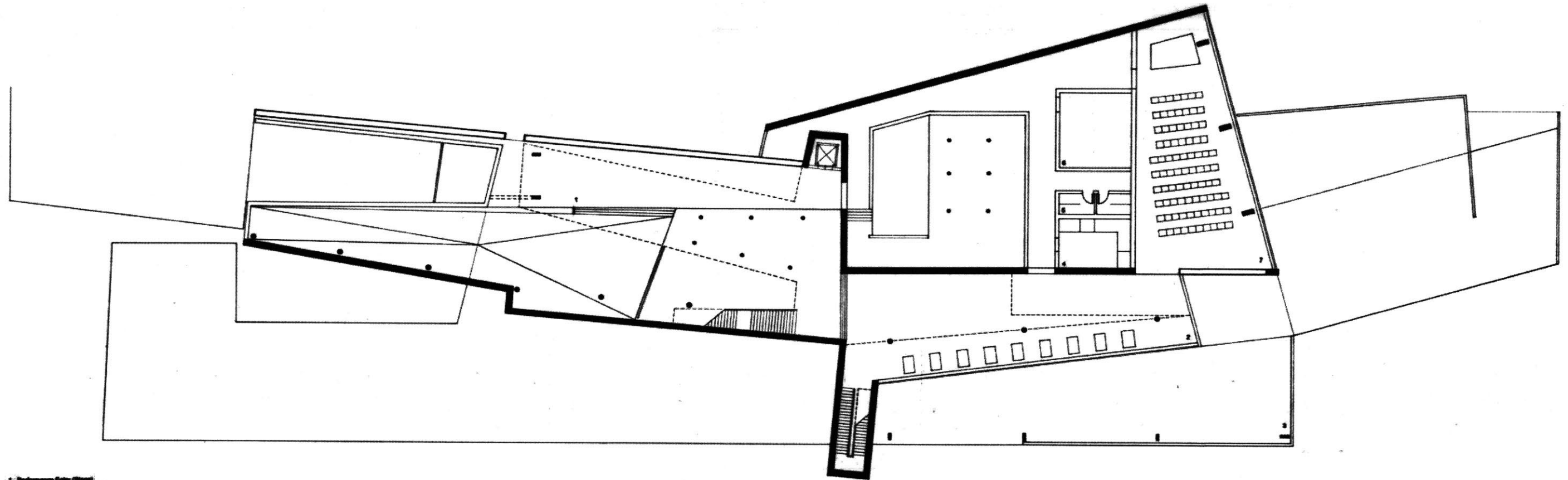
LOWE

1 Performance Entry (Stage)
2 Dining/Cafe
3 Outdoor Music Court
4 Kitchen
5 WC
6 Recording
7 Small Hall

LOWER LEVEL PLAN

0 1   5   10m
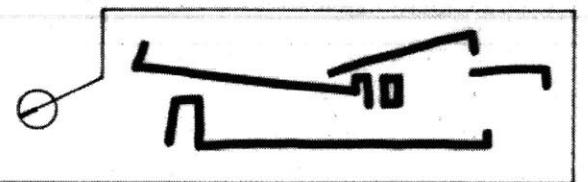
CENTER FOR CONTEMPORARY COMPOSITION

Figure 2:
Ground Level Plan

1 Entry
2 Circulation
3 Ramp to B
4 Ramp to N
5 Platform (I
6 Workshops
7 Administra
8 Lobby
9 Ramp to P
10 Performan
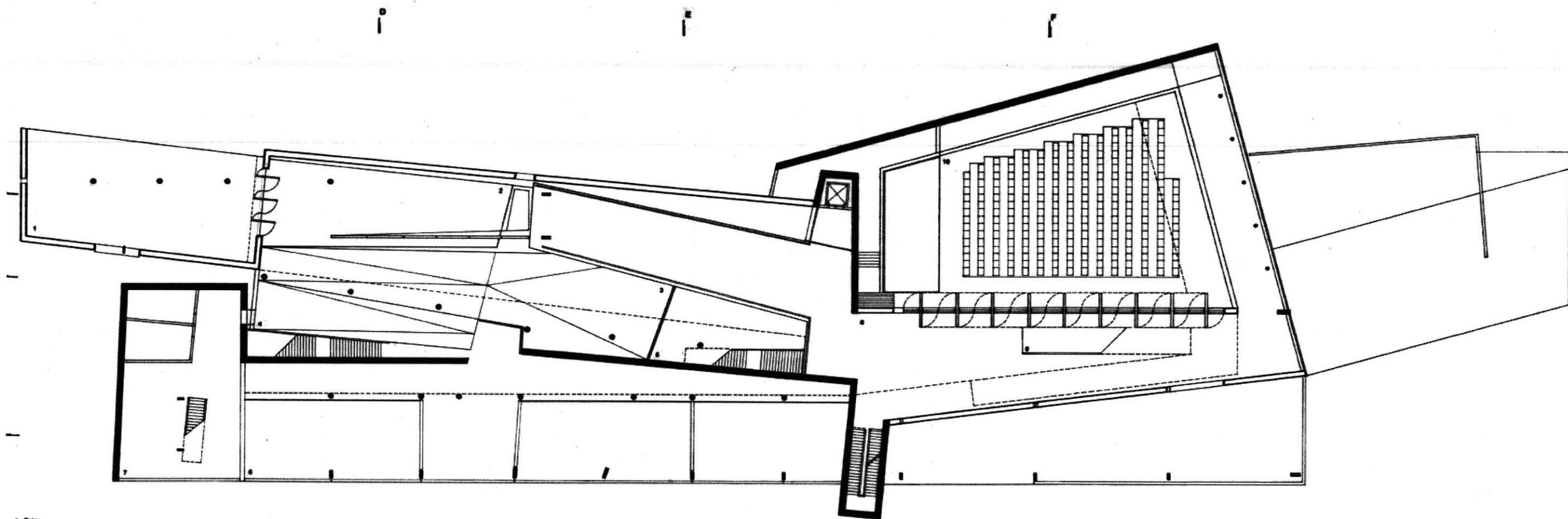
grou

1 Entry
2 Circulation (Public)
3 Ramp to Stage
4 Ramp to Workshops/Residential
5 Platform (Stage)
6 Workshop/Practice Rooms
7 Administration
8 Lobby
9 Ramp to Performance
10 Performance Hall

GROUND LEVEL PLAN

0 5 10m

Figure 3:
1. Upper Level Plan

1. UP
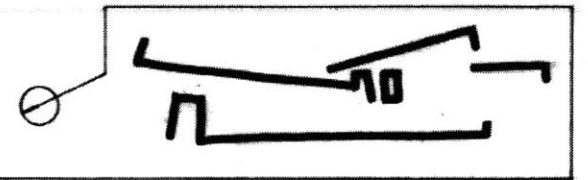
1. UPPER LEVEL PLAN

CENTER FOR CONTEMPORARY COMPOSITION

Figure 4:
2. Upper Level Plan

upper Rooms
inglo Rooms

UPPER

UPPER LEVEL PLAN
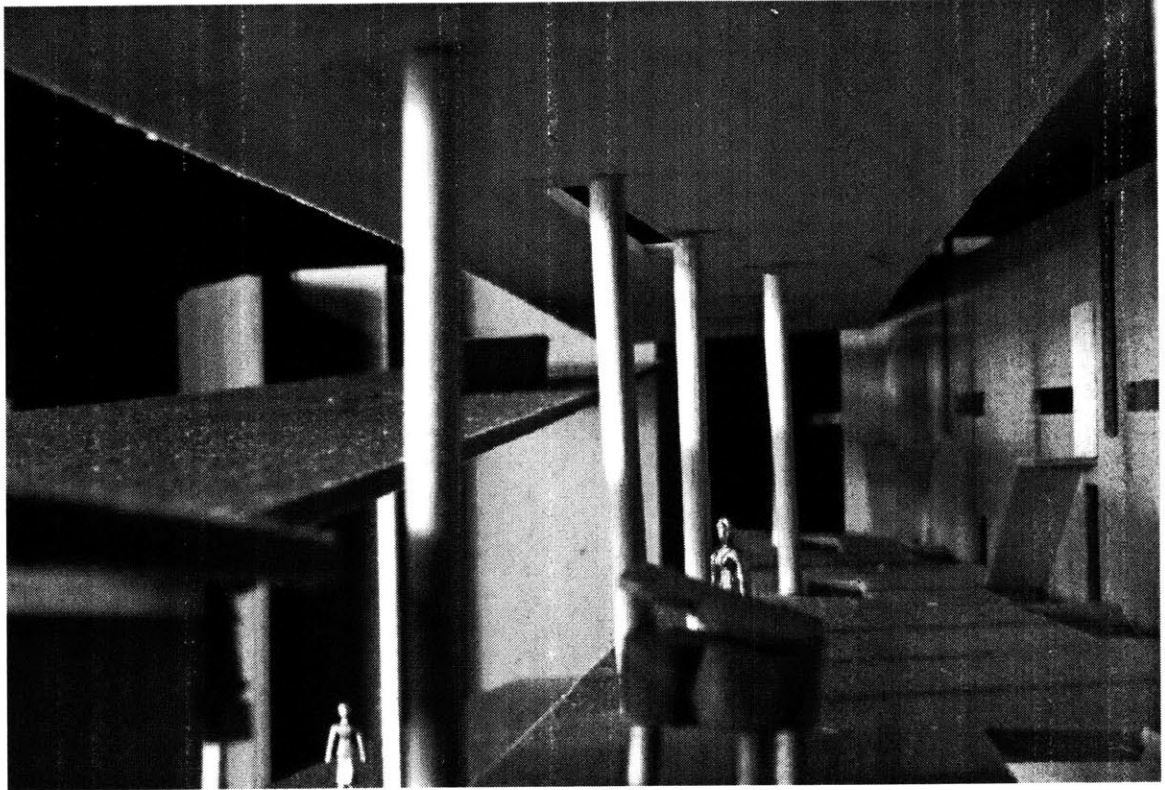
Figure:
Final Model. View of
Resident's Gallery from
North.

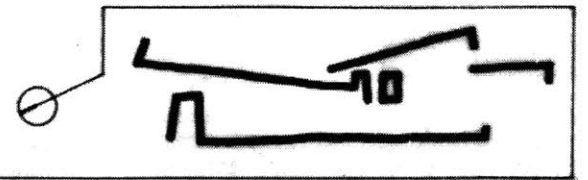Inherent to this type of program are spaces for composing, practicing, and performance, as well as residential spaces. But part of the challenge of beginning from the theory of the non-linear was how theory could influence and generate a rethinking of the program. What else could this kind of center be and how could it stimulate a new way of looking at music composition and the space within which it occurs. Spaces like music workshops are therefore part of the program as are places for casual interaction and collaboration. For example, the residential gallery in front of the housing units is a place where people can meet to talk or work on a piece together. The piano on the balcony means that spontaneous playing could occur or informal performances could be shared among intimate groups. More formal places for meeting are also included for music performance and socializing. The dining area with its adjoining outdoor courtyard serves as a place to meet for meals but also could be used for evening shows. Outdoor performances could occur in the summer time when residents perform and get commentary on their current work.
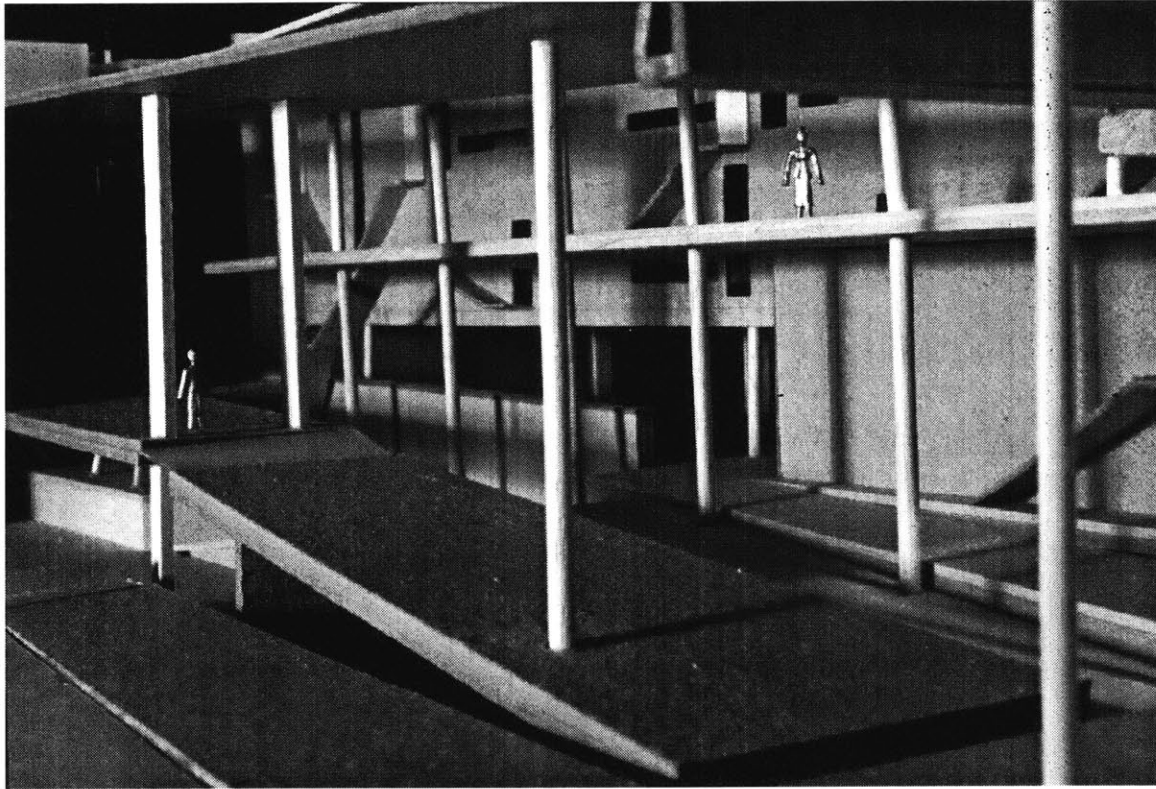
Figure Above: Final Model. View into Foyer from Entrance. *Exterior wall removed.*
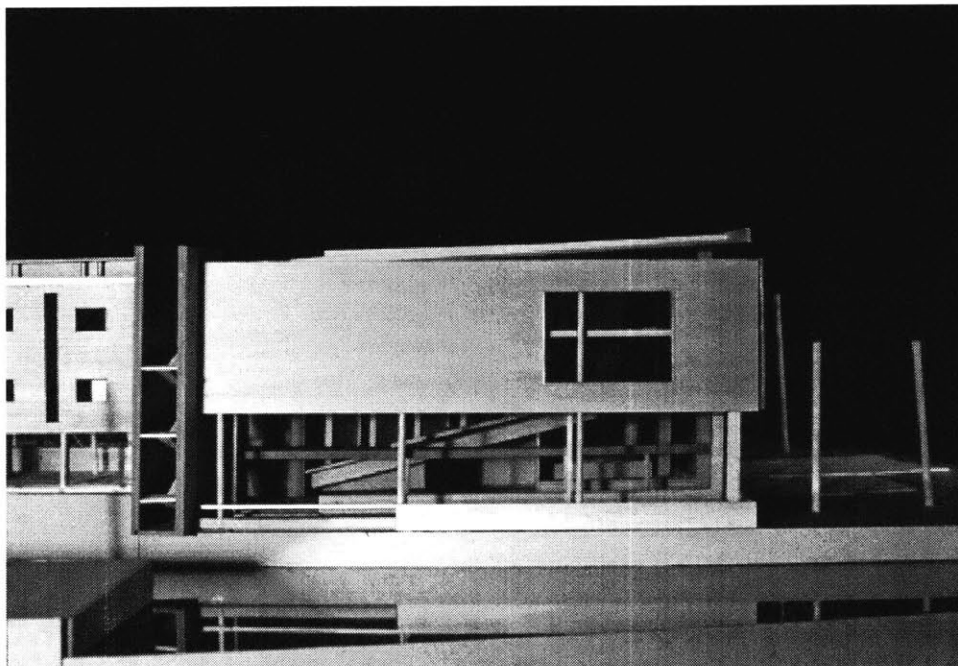
Figure Left: Final Model. West Elevation. View of Dining Area and Outdoor Courtyard (Lobby above with urban window).

Figure:
Diagram Model.
Shifting floor planes cre-
ate interior architectural
topography.
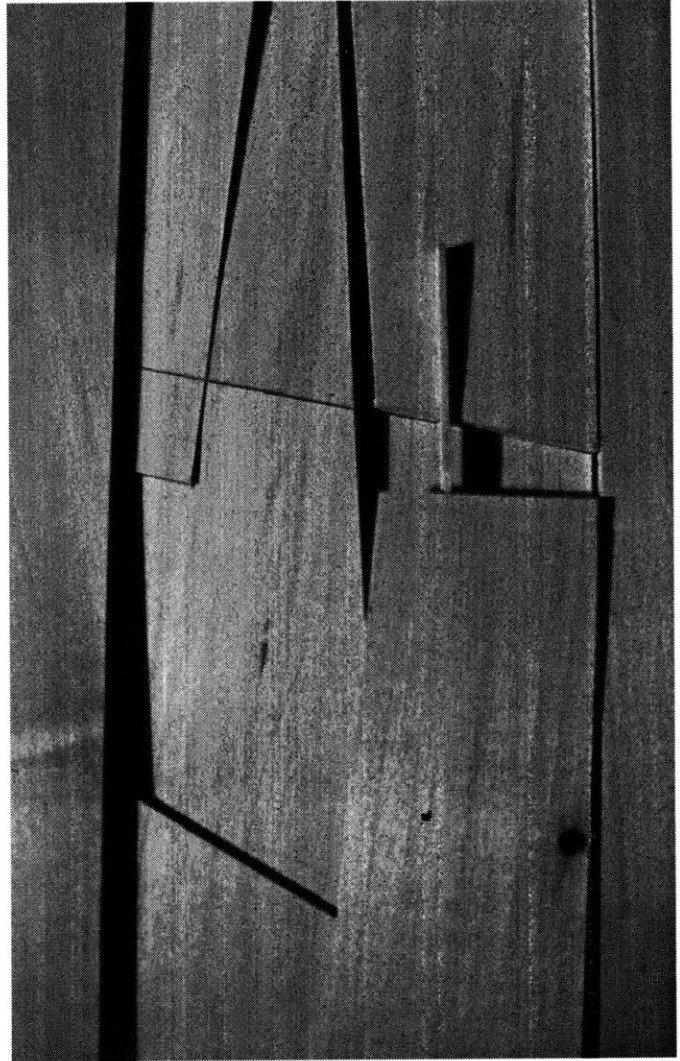
This program recognizes that collaborative interaction occurs not in formal but in more casual envi-
rons. The Center aims at stimulating participants to take their music in new directions, experiment
with tangential interests, and allow for the broadening of musical expression that collaborative inter-
action generates. It is a place to make mistakes and new discoveries. The group that resides here
should be able to feed off each other's music and ideas. Similarly, the architecture draws upon this
program for inspiration and reciprocates with an energetic environment that invokes a desire to
make new music. Ideally, the architecture contributes to the success of the program.

1. Le Corbusier, *Ouvre Complete
de 1929-1934.* 5th ed., 24.

Circulation serves to mediate the different areas of the building. Movement occurs primarily on the interior of the building in the open space of the foyer. Changes in the ground plane in the form of ramps and bridges define the zones of movement. At the time of a performance, the shifts subtly differentiate the circulation paths of the user groups. The architecture of the movement serves as a non-formal device that introduces velocity, or pace, into the building, and provides an opportunity to articulate significant moments of the circulation. This means to recall the quotation from Le Corbusier: "it is when walking, when moving that one sees ordering principles of architecture unfold."[1]

Shifts of the floor plane in the entry foyer create subtle undulations that cause gradual changes in velocity. In the lobby, ramps slope with a steeper gradation. A person would move through the section of this public space more quickly. Conversely, composers going to their rooms would cross a changing architectural topography of the foyer and move upstairs to the next level. The pace again slows down as they walk along the gallery but then increases with steep steps that lead to the doors of the rooms.

Shifting the floor plane serves other architectural means. As one moves through the foyer from point A to point B, there is a reciprocal vertical movement from a 0,0 m point to one that is above or below. In this way, the body negotiates the given ground plane of the building much in the same way that one would navigate a landscape.

The undulation of the horizontal plane as it mediates the 0,0 m level is important for the urban scale. The public and residential uses of the Center call for some form of public urban space. Since the site offered little opportunity for this, the urban context was recreated in the building. The foyer acts in a dual role as an urban piazza and an enclosed interior space. The strong edge facing Storrow Drive translates on the interior into a backdrop for the dramatic openness. This sets up a relationship of the interior urban landscape to the external park landscape and the Charles River.
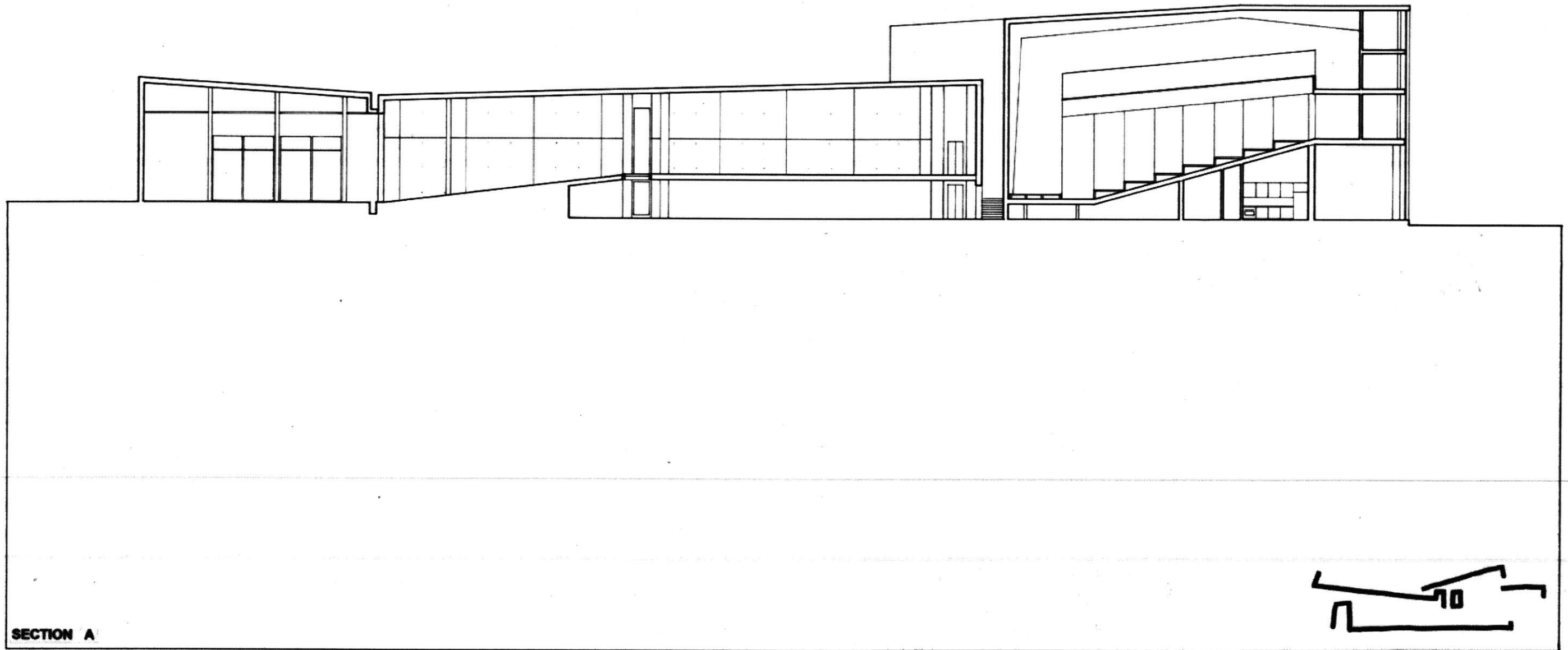
Following Pages:

Figure 1:
Section A
_____

109 . 110
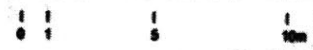
SECTION A

CENTER FOR CONTEMPORARY COMPOSITION

Figure 2:
Section B

SECTION B
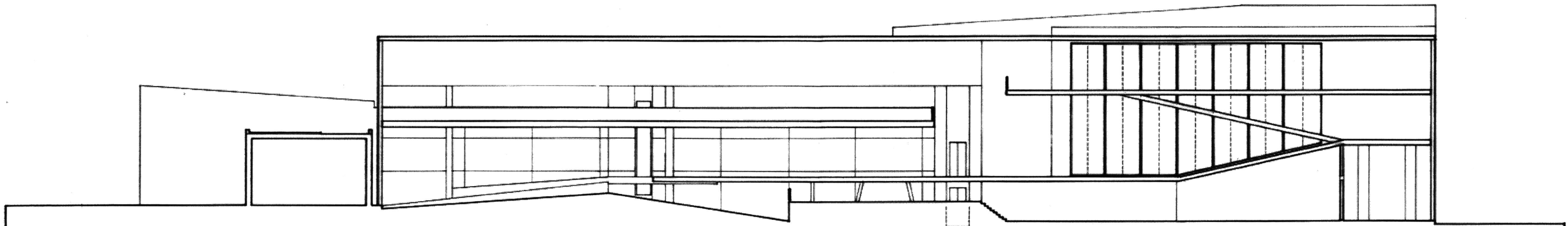
Figure 3:
Section C

SECTION C

Figure 4:
Section D - F

SECTIONS D – F

CENTER FOR CONTEMPORARY COMPOSITION

Audience | Public

Performers | Private
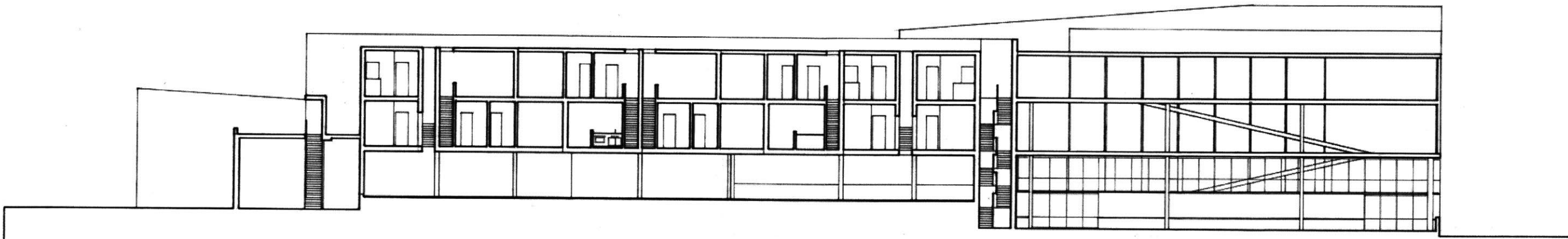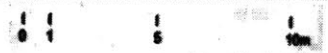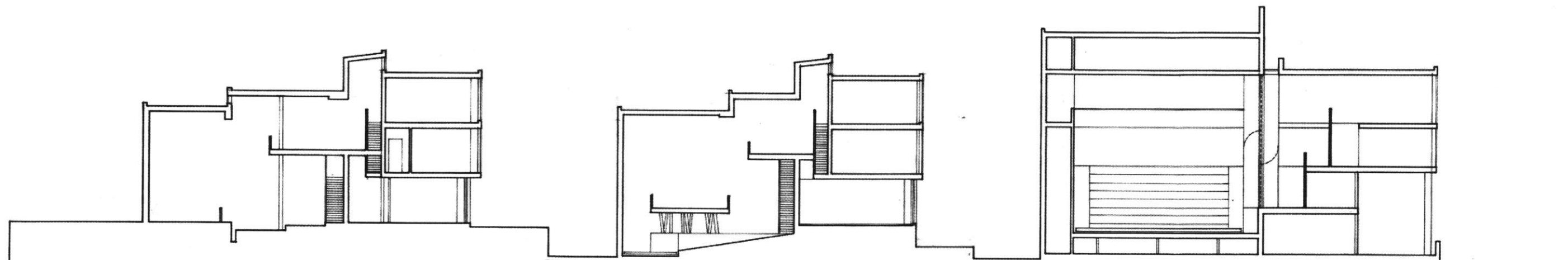
COMPOSERS
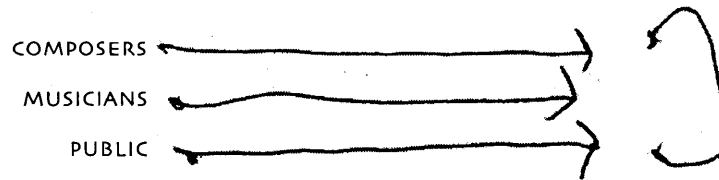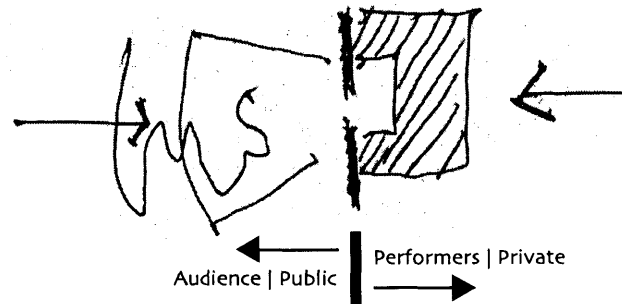
MUSICIANS

PUBLIC

During a public performance, three users: the public, the musicians, and the composers weave through a space along independent paths as they move towards the hall. Paths split and overlap making an event out of movement. In the traditional arrangement of performance halls, uses and performers meet face-to-face only in the hall and only during the playing of a piece. At the Center, the public and the performers share the same space in the foyer, only the shifts of the floor suggest their separation. There is more an indication of passage than a clear marking of space. Upon entrance all users are aware of a shared presence. This acts to emphasize that the performers, the composers, and the public are equally significant contributors to the *process* of the performance. There is a point of junction, where the public moves from the urban edge to the lobby at the water's edge and the musicians crossover to the backstage area. At this moment, the public crosses above the performers' ramp and the two groups occupy the same space in section. They are physically closest at the immediate moment before they separate – the performers to get instruments, the public to take their seats.

This entry sequence intends to take the experience of music outside the performance hall itself and emphasizes it as a process of creation that begins well before the final performance. Some of the formality of the performers situated opposite the audience is removed because they have shared a space already and have been part of the same act of filtering into the hall.
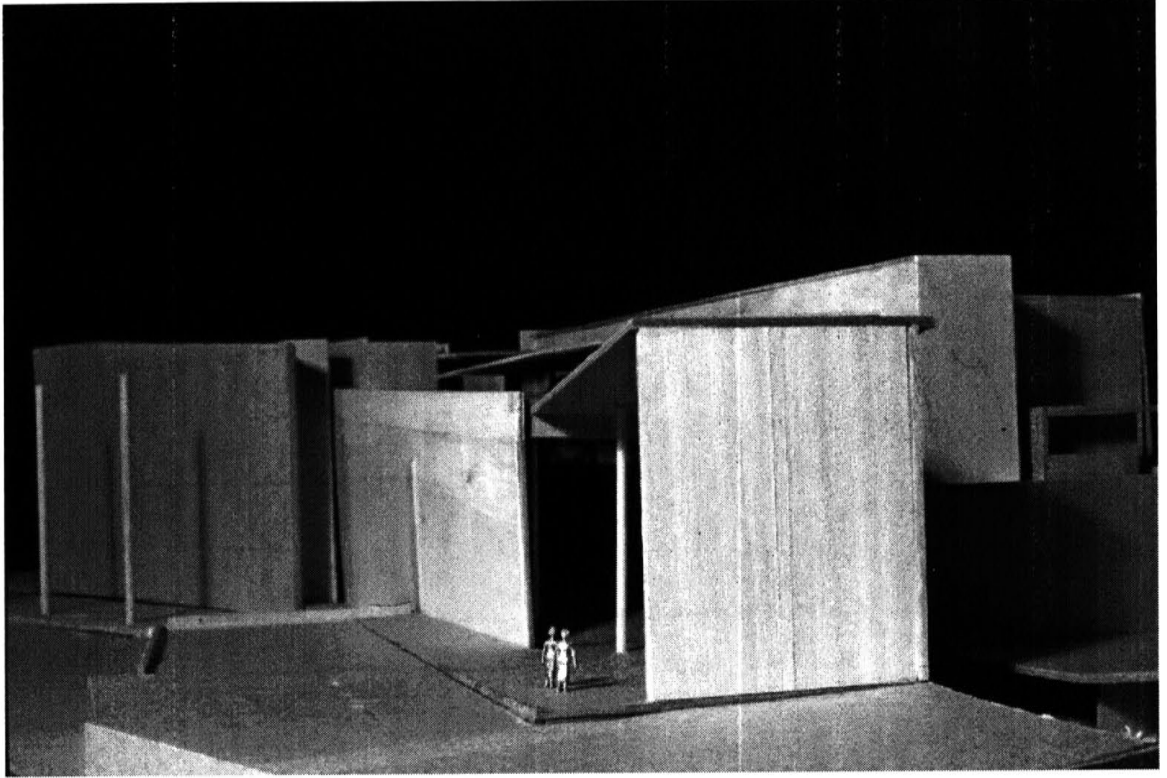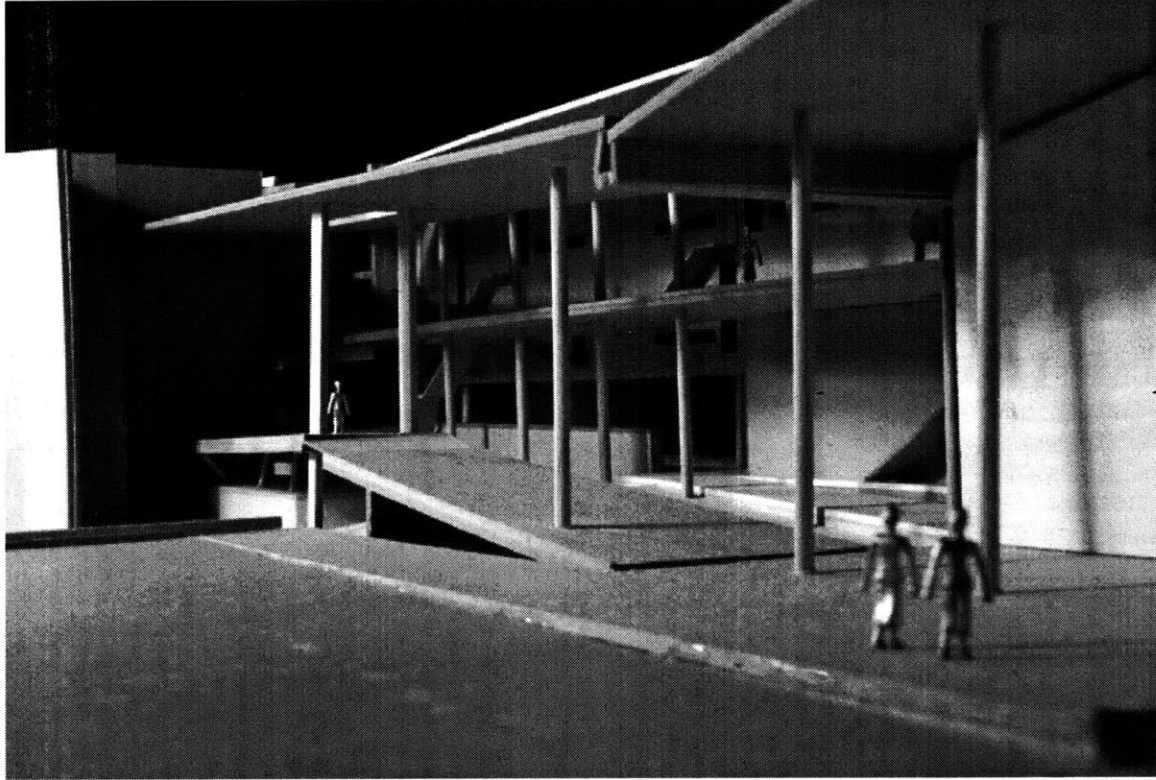
The Informal

The relationship between form and movement is actually suppressed so that only through subtle shifts in ground planes is movement suggested. The typical means of defining space with an enclosure is replaced with structural elements that help to define the field. A line of column moves through the building from the exterior entry porch, shifts to support the balcony, weaves through the foyer, and ends in the lobby area. A second row of columns that supports the residential unit echoes the edge of the canal and is organized in a straight line but, unlike the interior columns, does not negotiate the space. It delineates a strong edge. Three columns are incongruent and rotate off the perpendicular in response to the internal axes that cut through the building. The densification of the columns, such as the playful column field visible to the performers as they enter the hall, further helps to distinguish zones within the interior. In this way, delineation of space occurs yet without clear boundaries so that edges are blurred and spaces overlap. Informality, therefore, comes from the "removal of form" and results in an more fluid definition of space. While the foyer is spatially connected and programmatically defined, the 'informal' expression makes a case for a fluid definition of use.
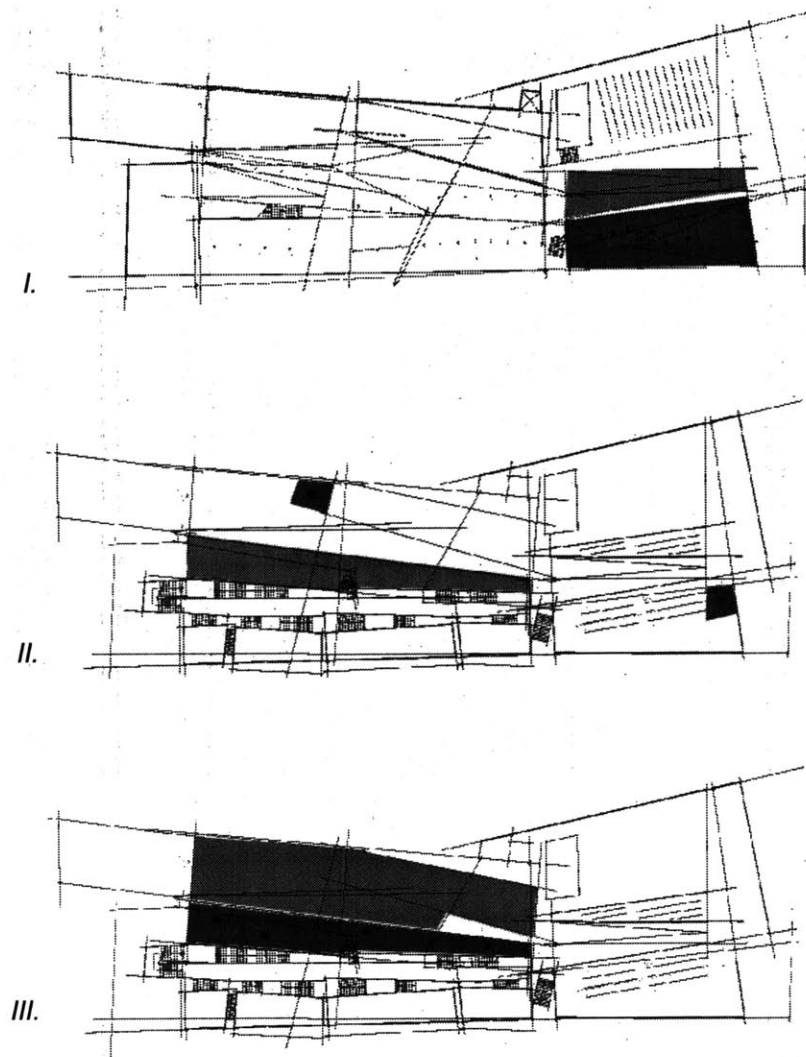
Figure:
Plan Diagrams.
Spatial zones active during
the three movements.
Audience: light gray
Performers: dark gray
(Musicians' placement
shown with dots)

A piece composed for performance throughout the building

The performance begins with the audience being lead up to the balcony of the residential gallery where seats have been arranged. The sound of a horn comes from the lobby. Its sound travels through the building with a faintness and is answered by the bold music of a horn from within the foyer. Musicians who have been sitting among the audience begin improvising on instruments and lead the audience from the gallery to the ramp of the performance hall at the south end of the building. Above, in the composer's gallery, nine players assemble; their sound saturates space and engulfs both audience and performers. The final movement of the piece takes the audience back into the foyer area where chairs are clustered in small groups across the changing topography of the ground level. From the residential gallery – the place they sat during the first movement – comes the music of a sonata for flute, percussion, piano, and cello. Sound seems to spill down the edge and fill the entire foyer with presence. In the silence that follows, the reverberations of the sound in space has changed the way the participants understand music and architecture.

Music can change a space and can be changed by a space. Each piece gains new meaning because its performance is linked with its location. Each space is understood in new light because sound gives an additional layer of character.
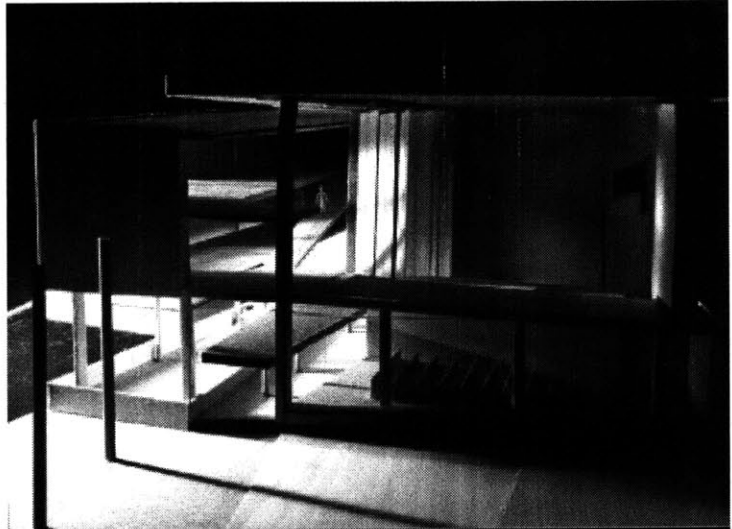
Top Figure:
View into Performance Hall with interior wall made of moveable panels in the closed position. This allows for a more traditional performance space.

Bottom Figure:
View into Performance Hall with moveable panels in the open position. This allows for a less conventional organization. The performance area incorporates the lobby and composer's gallery and music can travel throughout the building.

Performance is not the only opportunity for using a space in another capacity than anticipated. Everyday events that happen in the building are opportunities for this kind of active participation with the space. A workshop space can be used for practicing a piece, for meeting as a group, or as an individual's place of escape. Each space acquires multiple meanings because of different uses. Essentially, people do something to a space because they do something new in it.

This is a significant point because it underlines the intent of the architecture. Based on the interface scenario of music and architecture, the building design acts to sponsor the users' involvement with space making. The composers and musicians are invited to physically interact with the architecture, moving the intended symbiotic relationship of music and architecture beyond the realm of the conceptual into that of the experiential. The interior wall between the performance hall and lobby illus
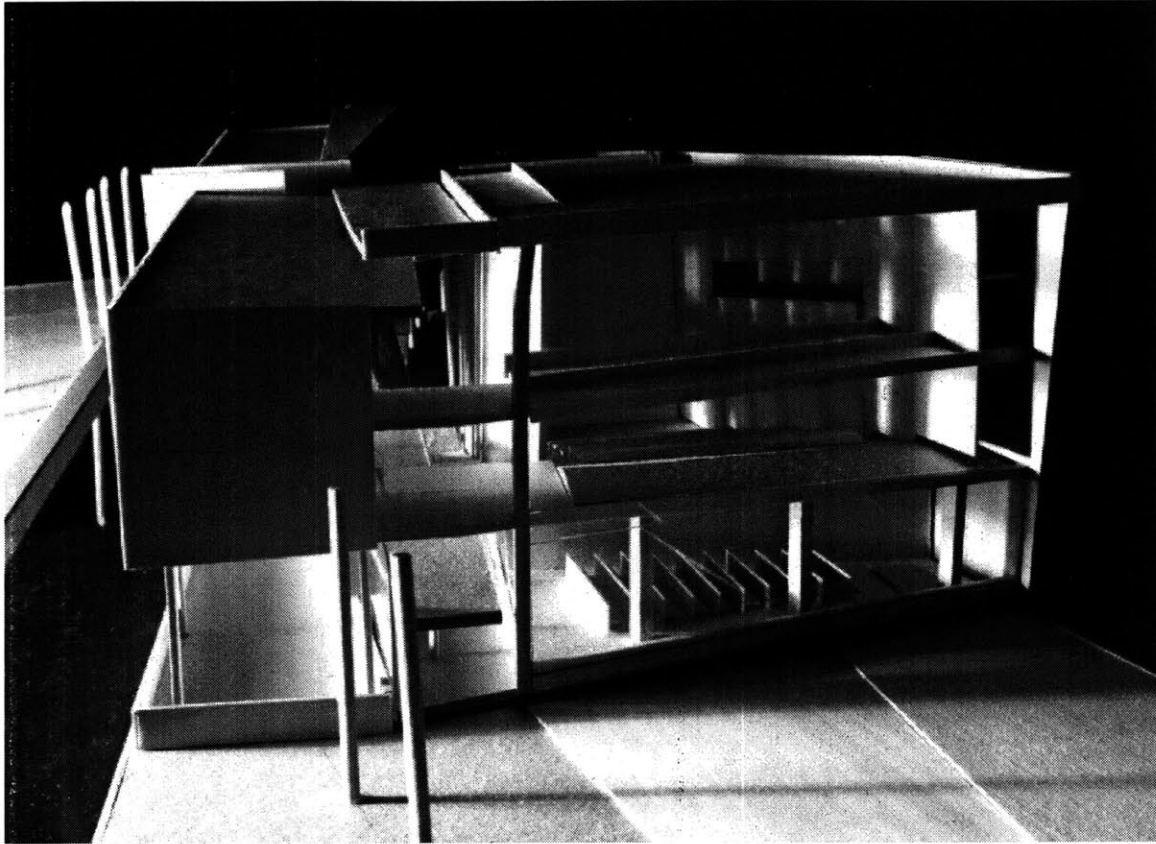
trates this. The performers can create a traditional hall when the wall is closed. When opened, music filters through the building. The panels of the wall can be stored in the wall pocket so that the space for performance increases in area to include the lobby and the composers' gallery. The physical distinction of separate program spaces (for example, lobby versus stage area) becomes increasingly blurred with the opening of the wall. Programmatic spaces acquire dual uses; the composer's gallery can be used for seating, the lobby could potentially serve as stage, and the stage could be displaced to anywhere aurally accessible.
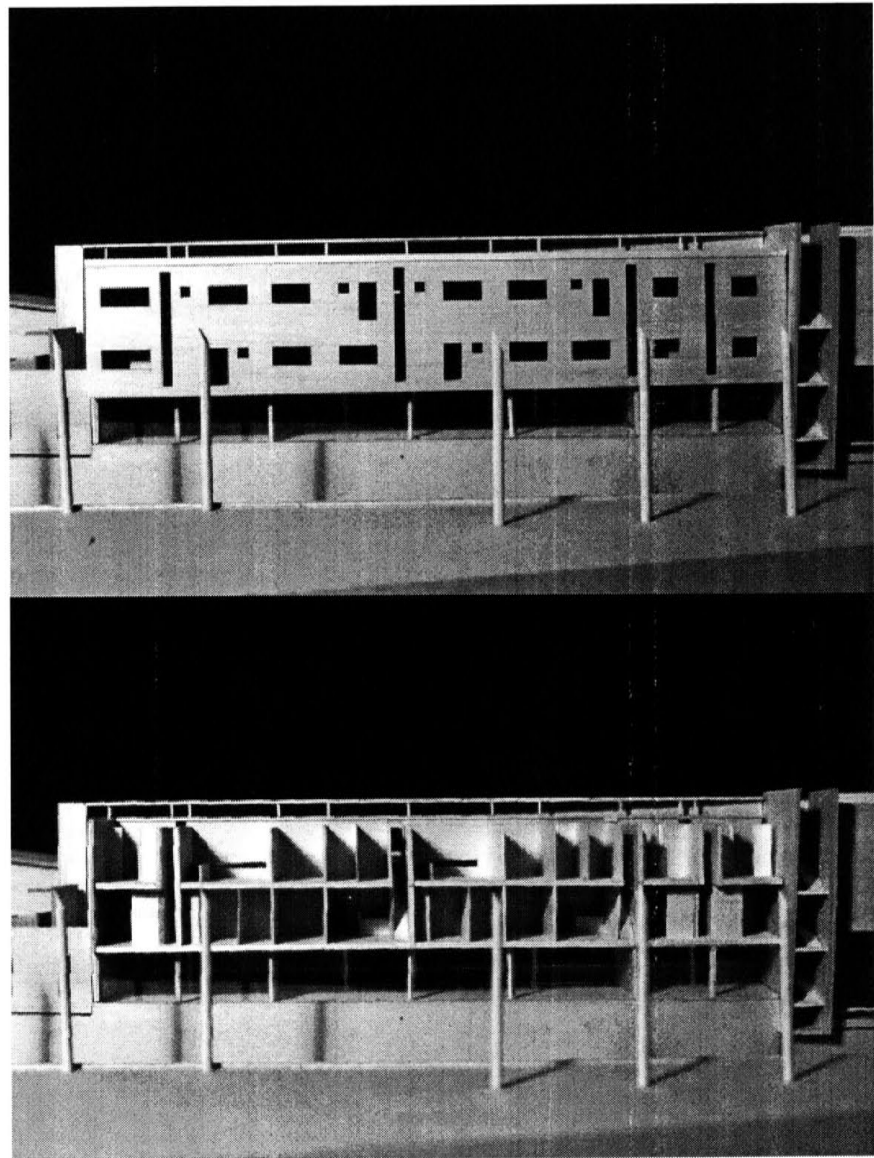
The architecture of the residential units intends to reflect the diversity of composers residing at the Center. They would range from well-established professionals to students embarking on their careers. A relevant question in the design revolved around the needs of composers when creating music. The architecture aims to provide an environment for composition, which entails comfortable spaces to substitute a person's usual places of composition. There is an increased need for places to compose because the inhabitants are displaced from their accustomed environments. For this reason, the residential units are designed as places for living not just sleeping. Composers have the opportunity to work in practice rooms on the ground floor or in their living areas.

Hierarchies of type accommodate the needs of diverse groups: Four duplexes offer living over two stories for composers with families or for three students (these act as apartments or as suites with one double, one single, and a shared living area); six single units are intended for composers or advanced students. While the dining area provides the meals (and opportunity for social interaction), the duplexes do have kitchenettes. As significant as the rooms themselves is provision of a space for informal gatherings. The residential gallery is thought of as a place where people leaving or entering rooms can meet. It becomes an area for socializing or practicing that is separate from more private space. The housing offers areas of privacy and intimacy yet at the same time attaches itself to the public spaces of social and creative interaction. While the spaces are clearly delineated the layering of these zones creates a porosity of spatial and use relationships. This porosity creates overlaps and encourages fluid definitions for use of and movement through the space.

A Conclusion that Continues

In music one can have shifting tonal centers. In literature multiple points of view create simultaneous stories. I believe that architecture creates a multiplicity of spatial experiences and thrives on an intersection of art forms. Drawing upon theory and architectural principles, I have tried to suggest how the *movement* through the building—necessarily sequential and physically linear –contributes to and complements the *experience* of the spaces: non-linear and open to multiple interpretations.

The *Center for Contemporary Composition* is a place for short-term residency which promotes through its architecture intense creativity and continual idea exchange within a group of composers from diverse backgrounds. The Reciprocity of two art forms— music and architecture – motivates the program, the intended interaction, and ultimately the architectural design presented in this thesis.

Center for Contemporary Cor
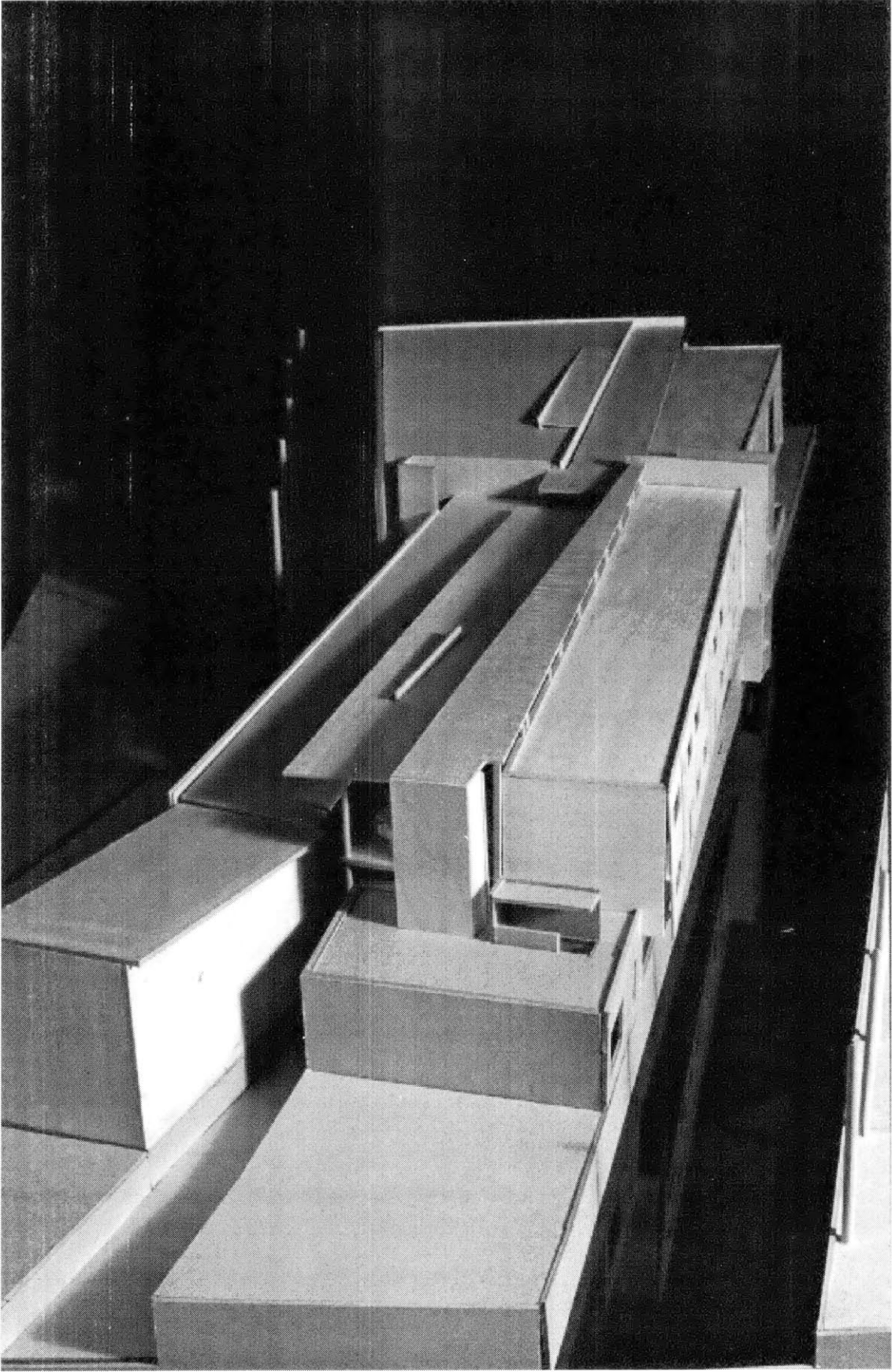
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HRO